The Mining Journal
RAILWAY AND COMMERCIAL GAZETTE.

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

No. 754.---Vol. XX.] LONDON, SATURDAY, FEBRUARY 2, 1850. [Price 6d.

EXTENSIVE SALE OF MACHINERY, ENGINEERS' and MACHINEMAKERS' TOOLS, PATTERNS, and STOCK, LOCOMOTIVE ENGINES and TENDERS, &c., AT WALLACE FOUNDRY, DUNDEE.

MR. J. M. BEATTS has been instructed to SELL, BY PUBLIC AUCTION, within the Wallace Foundry, DUNDEE, on Tuesday, the 5th February next, and following days, commencing each day at half-past Ten o'clock A.M.,

THE WHOLE MACHINERY AND TOOLS

belonging to Messrs. Kinmonds and Co., engineers, who have resolved to discontinue that part of their business—comprising engineers' and machinemakers' tools of all kinds, heavy boring and turning lathes, large and small vertical boring machines, slotting machine, planing machines, screwing machine, self-acting and common turning lathes, from 7 inches to 18 inches high, with slide rests, &c., large cranes, smiths' and boilermakers' tools, vices, anvils, punching, rolling, and clipping machines, large boiler waggons, stock of boiler-plate, bar-iron, hardwood, &c.

THREE LOCOMOTIVE ENGINES and TENDERS; 12-horse High-pressure ENGINE.

Several sets of railway carriage and engine wheels and axles, and the whole stock of valuable patterns.

The business carried on by Messrs. Kinmonds and Co. was of a very extensive description, and the machinery and tools are for the most part new, and of the most approved construction. The stock of patterns is very extensive and valuable. The whole may be examined on the premises till the day of sale.

Catalogues may be obtained at the following places—viz.:

London—William Randall, Esq., 167, Fenchurch-street.
Antwerp—William Wood, Esq.
Dunkirk—David Dickson, Esq.
Leeds—Robert Berrie, Esq., Salem-place.
Newcastle—Messrs. John Spencer and Son, Sussex-street, Forth street.
Hull—Messrs. Thompson, M'Kay, and Coy.
Liverpool—Messrs. Stewart and Cox, 15, Rumford-street.
Edinburgh—Messrs. James Tod and Sons, Leith Walk.
Glasgow—Messrs. Henry Brothers, 5, Dixon-street.
Dundee—At the works, and of Mr. J. M. Beatts, Auction Mart, 39, Reform-street.

Wallace Foundry, Dundee, Jan. 14, 1850.

FLINTSHIRE.—VALUABLE MINES AND COLLIERIES,

Consisting of SHARES in the TALACRE, TALARGOCH, HOLYWELL LEVEL, and NANT-Y-MWYN LEAD MINES, and the WHOLE of the MINES and MINERALS under an ESTATE at COLESHILL.

MESSRS. CHURTON have the highest satisfaction in calling the attention of the monied world to a SALE of MINERAL PROPERTY of unusual importance, inasmuch as the whole of the lots are extremely productive, with every prospect of increasing dividends, and which is appointed to take place at the Albion Hotel, in the city of CHESTER, on Friday, the 8th day of February, 1850, at Four o'clock in the afternoon, in lots to be determined upon by the vendors' agents at the time of sale, and subject to such conditions as will then be produced, consisting of—

5-28th SHARES of and in the TALACRE LEAD MINE, in the parish of Llanasa, in the county of Flint, held under leases for various periods.

761 SHARES (the whole into 2208 being divided), of and in that most important undertaking, the TALARGOCH LEAD MINES, in the parishes of Meliden and Dyserth, in the county of Flint.

1-15th PART of, or SHARE, in the HOLYWELL LEVEL LEAD MINE, held under various leases.

The whole of the MINES AND MINERALS in, and under an estate situate in the parish of Holywell, in the county of Flint, and comprising about 37 a. 3r. 34 p. of land or thereabouts, now held by the Coleshill Colliery Company, under a lease, for a term of which 14 years or thereabouts are unexpired, at the annual reserved rent of £40.

N.B.—More descriptive particulars are in course of preparation, and will be ready for delivery six days prior to the sale, at the inns in Holywell, St. Asaph, Rhyl, Conway, Bangor, Carnarvon, Ruthin, Denbigh, &c., at the offices of Mr. Walker, solicitor, Chester, and Messrs. Roberts and Son, solicitors, Mold; or from Messrs. Churton, the auctioneers.

To ENGINEERS, MINING and COLLIERY COMPANIES, BREWERS, DISTILLERS, MANUFACTURERS, WHARFINGERS, and WAREHOUSE-KEEPERS, IRON-FOUNDERS, BUILDERS, and OTHERS.

IMPORTANT SALE OF SURPLUS RAILWAY MATERIAL, STEAM-ENGINES, PLANT, and MACHINERY, including 800 tons IRON.—MINORIES & BLACKWALL.

PULLEN & SON respectfully announce, that they have received instructions from the directors of the London and Blackwall Railway Company to SELL, BY AUCTION, at the Minories Station, and at the Terminus, Blackwall, on Monday, 11th February, and following days, at Twelve o'clock, in consequence of the alteration in the motive power on the line, the whole of the extremely valuable

PLANT AND MACHINERY

lately used in working the Rope, including 2 pairs of magnificent first-class STEAM-ENGINES, of 220 and 150-horse power each, constructed by Messrs. Maudslay & Field, and Mr. John Barnes, and in the best possible working condition; 7 large iron tanks, by Bramah, 26 feet square and 6 feet deep, gauging 25,000 gallons each, with brass valves, sluice cocks, &c.; 2 pairs of powerful hoisting machines for goods, by Ellis and Noton, of Manchester, to lift 5 tons each, with large break wheels, iron cradles, and apparatus; 4 24-feet diameter iron drum-wheels for coiling the rope, with large break and pinion-wheels, iron shafting, and plummer blocks; 4 vacuum pumps, with pipes, brass cocks, rods, and fittings; 4 20-feet diameter iron cog-wheels, with powerful driving and shifting gear; 1000 feet of 12 and 9-inch flange and socket pipe, 250 feet of 3-feet 6-inch iron shoots, 20 iron girders, iron columns and framing, 2 capital wrought-iron marine boilers, 10 feet square, with three furnaces in each, large quantity of sound brickwork; and other valuable material.

May be viewed on Friday and Saturday previous to the sale.—Catalogues had at the secretary's office, Fenchurch-street Terminus; at the superintendent's office, Blackwall; and of Pullen and Son, 80, Fore-street, Cripplegate.

BLAIR IRON-WORKS.—These extensive IRON-WORKS, with the LEASES of the MINERAL FIELDS, as formerly advertised, will be EXPOSED FOR PUBLIC COMPETITION on or about the month of APRIL next, if not previously disposed of by private bargain.

In the meantime offers will be received, and information afforded, by Mr. Brown, 35, St. Vincent-place, Glasgow.

SEA SALE COLLIERY TO BE LET, and Entered at May next—all that valuable and CURRENT-GOING COLLIERY, situated on the SOUTH BANK of the TYNE, at JARROW, in the county of Durham, containing the BENSHAM and LOW MAIN SEAMS of COAL in great perfection. The colliery is fitted up on the most improved manner, and may be undertaken with a very moderate capital.

For particulars apply to Mr Matthias Dunn, colliery viewer, Newcastle-on-Tyne; or to Mr. Matthew Liddell, viewer, Benton Grange.

Newcastle-on-Tyne, Jan. 31, 1850.

ASTURIAN MINING COMPANY—IN LIQUIDATION.—Notice is hereby given, that the REAL ESTATE, the CONCESSIONS of COAL and IRON MINES, and the WORKS of this company at MIERES DEL CAMINO, and in the adjacent districts: the QUICKSILVER MINES of LA EUGENIA, near Pola de Lena, and the COAL MINES at SANTO FIRME, situate in the province of OVIEDO, and principality of the ASTURIAS, in SPAIN, have been ordered by the Board of Directors and Liquidators TO BE SOLD, under TENDER; such Tenders also so include the Purchase, by valuation, in the usual manner, of the Stock in hand of all kinds, Implements and Articles used in the various departments of manufacture at the said works.

The Tenders to be subject to the approval of a general meeting of the company, to which is reserved the right of accepting the offer which may appear most beneficial to the shareholders of the said company.

A description of the property and the conditions of sale will be ready for inspection at Madrid with Messrs. H. O'Shea and Co., bankers, and E. Kelly, Esq.; at Mieres del Camino, with the company's superintendent; at Gijon, with J. J. Kelly, Esq., British Vice-consul; and at the company's offices in London, on and after the 2d February next. All tenders must be sent to the principal office of the company, 9, Austinfriars, London, on or before the 28th February next, addressed to "The Directors and Liquidators of the Asturian Mining Company," to whom also should be addressed all enquiries respecting the sale.—The works may be viewed on application to Mr. George Lambley, the superintendent at Mieres del Camino, in the Asturias.

By order of the Board of Directors and Liquidators,
K. MACKENZIE, Secretary.

Offices of the Company, 9, Austinfriars, London, Jan. 22, 1850.

INDURATED AND IMPERVIOUS STONE, CHALK, &c.—AGENTS, with capital, are WANTED in all TOWNS to SUPPLY (under British and Foreign Patents) the great demand for HUTCHISONISED MATERIALS—hard as granite, impervious to moisture, vermin, &c.; the cheapest and most durable for all buildings, hydraulic, paving, monumental and decorative work.—The profits are large.

Apply to HUTCHISON & CO.,
140, Strand, London; or Tunbridge Wells, Kent, and Caen, Normandy, stating name, address, and capital at command.

N.B.—Houses cured of damp. The produce of soft stone quarries, chalk, plaster of Paris, wood, pasteboard, and all absorbent materials indurated to resist frost, vermin, &c.

LICENCES GRANTED.

THE PATENT OFFICE AND DESIGNS REGISTRY.
No. 210, STRAND, LONDON.

INVENTORS will receive (gratis), on application, the OFFICIAL CIRCULAR OF INFORMATION, detailing the eligible course for PROTECTION of INVENTIONS and DESIGNS, with Reduced Scale of Fees.

Messrs. F. W. CAMPIN and CO. offer their services, and the benefit of many years experience, in SECURING PATENTS and REGISTRATIONS OF DESIGNS, with due regard to VALIDITY, economy, and dispatch—assisted by scientific men of repute.

Also, in MECHANICAL and ENGINEERING DRAWINGS, whether connected with Patents, Railways, or otherwise, by a staff of first-rate draftsmen.

Application personally, or by letter, to F. W. Campin and Co., No. 210, Strand (corner of Essex-street).

STEAM TO INDIA AND CHINA, VIA EGYPT.—Regular MONTHLY MAIL (steam conveyance) for PASSENGERS and LIGHT GOODS to CEYLON, MADRAS, CALCUTTA, PENANG, SINGAPORE, and HONG-KONG.

THE PENINSULAR AND ORIENTAL STEAM NAVIGATION COMPANY

BOOK PASSENGERS and RECEIVE GOODS and PARCELS for the ABOVE PORTS by their steamers—starting from Southampton on the 20th of every month; and from Suez on or about the 10th of the month.

BOMBAY.—Passengers for Bombay can proceed by this company's steamers of the 29th of the month, to Malta, thence to Alexandria by her Majesty's steamers, and from Suez by the Honourable East India Company's steamers.

MEDITERRANEAN.—MALTA—On the 20th and 29th of every month. CONSTANTINOPLE—On the 29th of the month. ALEXANDRIA—On the 20th of the month.

SPAIN AND PORTUGAL.—Vigo, Oporto, Lisbon, Cadiz, and Gibraltar, on the 7th 17th, and 27th of the month.

For plans of the vessels, rates of passage-money, and to secure passages and ship cargo apply at the company's offices, No. 122, Leadenhall-street, London; and 57, High-street, Southampton.

ECONOMICAL STEAM-ENGINE—Surpassing the Cornish.
CRADDOCK'S PATENT DOUBLE CYLINDER HIGH-PRESSURE EXPANSIVE AND CONDENSING ENGINE,

Alike ADAPTED FOR MARINE, LOCOMOTIVE, AND STATIONARY PURPOSES.

BOILER.—Tubular, free from deposit, and perfectly safe from explosion.
ENGINE.—Not half the weight or bulk of ordinary engines.
FUEL.—Not half that required by the best engines of the common kind.
WATER.—Under 1 gallon per horse-power per day of 10 hours, for all purposes, with air as the medium of condensation if desired.

These engines are erected at a comparatively trifling expense, and are easily worked.

FOR SALE.

TWO 40-horse power ENGINES, suited to condense either by air or water.
ONE 25-horse power ditto ditto ditto
ONE 20-horse power ditto ditto ditto
A PAIR of OSCILLATING MARINE ENGINES, of 10-horse power.

These engines are quite new, with boiler, condenser, and regulating damper—all got up in the best and simplest manner. They are much simpler, and almost beyond comparison more compact than the Cornish engine, also more safe and economical than even those engines, yet the price of the Cornish is nearly double that at which these are offered.—Parties wanting engines will find in the above good bargains.

Apply to THOS. CRADDOCK, engineer, 36, Broad-street, Birmingham.

Also ON SALE, THREE 4-horse HIGH-PRESSURE ENGINES, simply arranged, and well got up.

COMBMARTIN AND NORTH DEVON LEAD AND SILVER SMELTING COMPANY.

REGISTERED UNDER THE JOINT-STOCK COMPANIES' ACT.

The SMELTING-WORKS of the above COMPANY are in ACTIVE OPERATION.—SAMPLES of LEAD and SILVERY ORES are requested to be forwarded to Captain Cornelius Bawden, Combmartin, near Ilfracomb, North Devon.

Payment for ores by bill, at three months, or cash if required.

Combmartin, Jan. 1, 1850. THOMAS L. WILLSHIRE, Secretary.

EAST BIRCH TOR TIN MINING COMPANY, DEVON.
Capital £7500—divided into 2500 shares, of £3 each.
Incorporated pursuant to Act of Parliament, 7 and 8 Victoria, cap. 110.
SEVEN HUNDRED SHARES REMAIN TO BE ALLOTTED.

This valuable MINERAL PROPERTY is situate in the parishes of NORTH BOVEY and MANATON, upon DARTMOOR, 18 miles west of Exeter, in the county of Devon.

The mine is held by this company for a perpetually renewable term of years, without fine or premium, at the very low dues of 1-25th of the realised value of the ores. It has hitherto been conducted on the Cost-book system, but was completely registered and incorporated under the Act 7 and 8 Vic., cap. 110, the 28th Nov., 1849, and a Deed of Settlement has been prepared pursuant to that Act, by which arrangements the liabilities of the shareholders and the method of conducting the business of the company have been defined, and the advantages of complete registration secured.

The affairs of the mine are under the management of a board of directors in London, chosen by the shareholders at their annual meeting. General meetings of the shareholders will be held half-yearly (10 days' notice being given), when a full statement of the company's affairs will be submitted to the shareholders. Ample provisions have also been made for an accurate and impartial periodical audit of the company's accounts.

The mine contains 10 distinct lodes—the richness of which has been fully and fairly tested—so that it is certain that, by the employment of about £1500 additional capital, it cannot fail to make a highly productive and dividend-paying mine. Birch Tor and Vitifer Mines, on the same lodes, and immediately adjoining East Birch Tor on the west, have returned a profit of upwards of £100,000 worth of tin.

The shafts, water-wheels, lift of pumps, stamps, workshops, and all necessary apparatus, are complete, so that the additional capital will be expended in sinking to a greater depth, driving levels, and raising tin.

There is ample water-power to work the mine to a great depth, whereby the large expense of a steam-engine is saved.

The mine has been brought to its present promising state by an outlay on the part of a small proprietary of £12,000. Of this sum £2500 were expended in driving the cross-cut adit to intersect the lodes and unwater the mine. Upwards of £5000 has been returned by the sale of ores from the present shallow workings; and it is confidently anticipated that, by the disposal of the 700 reserved shares, the company's funds will be amply sufficient to ensure complete success.

The object now is to cut the extreme north lode No. 1, which has proved so productive in the adjoining mine.

Some excellent rocks of tin have been recently raised from No. 5 lode, and the ore at the last sampling fetched £42 per ton.

2, Winchester-buildings, February, 1850.

WEST POLGOOTH TIN MINING COMPANY.
Capital £12500, in 2500 shares, of £5 each.
CONDUCTED ON THE COST-BOOK SYSTEM.
Deposit £1 per share.
OFFICES, 15, OLD BROAD-STREET.

This valuable MINERAL PROPERTY is that portion of the unworked ore ground in a line between the Great Hewas and the Great Polgooth Mines: in extent it is about three-quarters of a mile on the course of the lodes, and its mean breadth half a mile—held under a lease of 21 years from Lord Mount Edgecombe, at 1-18th dues. The Hewas Mine returned from one lode the greatest quantity of tin in the time of any mine in the kingdom. Polgooth is now making, at a large profit, returns of nearly £3000 per month; both these mines are more than 110 fathoms deep. West Polgooth Mine is only down 34 fathoms—consequently there remains above 70 fathoms of virgin ore ground for the present company to return before they reach the level of the adjoining mines, and which is computed to be sufficient to employ 800 persons for 20 years to come. The tin is of a very fine quality, and with an outlay of £6000, 35 tons of tin per month may be returned, yielding a profit of 25 per cent.

The management is by a London committee, and the works on the mine prosecuted at the lowest possible cost.

A prospectus, with lithograph plan and section attached, may be had by applying to Mr. Robert Williams, the purser, at Mr. Richardson's offices, 15, Old Broad-street, where the Cost-book, containing the names of the directors, the rules, reports, specimens, working plans, &c., may be seen, and of whom full particulars may be known.

ASSAYING AND ANALYSIS.—ASSAYS and ANALYSES of MINERALS, METALS, SOILS, FURNACE, and all other MANUFACTURING PRODUCTS. INVENTORS and INTENDING PATENTEES assisted in PERFECTING any INVENTION involving an intimate knowledge of chemistry.

INSTRUCTION in all branches of ASSAYING, ANALYSIS, and METALLURGICAL and MANUFACTURING CHEMISTRY.

Communications to be addressed to Mr. Mitchell, 23, Hawley-road, Kentish Town.

PHOTOGRAPHY ON GLASS.—Now ready, the New Edition of PHOTOGENIC MANIPULATION: Part I., price 1s.; post, 1s. 4d. By R. J. BINGHAM. This work contains all the improvements and discoveries that have been recently made in this interesting art, together with a full description of the method of producing NEGATIVE PICTURES ON GLASS.

Part II., price 1s., contains full INSTRUCTIONS for practising the DAGUERREOTYPE,

George Knight and Sons, Foster-lane, London, of whom may be obtained all the apparatus and materials required in the Photogenic Art.

*** Sole Agents for Vorgtlander and Son's Daguerreotype Lenses.

CRAMPTON'S PATENT LOCOMOTIVE—The ARTIZAN, for February, price 1s., contains a large plate of a TANK ENGINE, on Mr. Crampton's recent patent—How to Make Working Drawings, with a 30-horse cylinder, quarter size—Clay's Patent Taper Rolled Iron—Fen Drainage—Indicator Cards and Starting Gear of the Portuguese war steamer *Mindello*—Dimensions and Details of seven new steamers—List of Ships Building on the Clyde—Recent English and American Patents, and a mass of practical engineering matter.—Sent free for 15 stamps, addressed to the *Artizan*, 69, Cornhill. The Volume for 1849, may now be had, price 14s.—The Index sent free for four stamps.

THE MINING ALMANACK for 1850: compiled and arranged by HENRY ENGLISH, Mining Engineer, &c. Under the especial sanction and patronage of H.R.H. PRINCE ALBERT, Lord Warden of the Stannaries, Chief Steward of the Duchy of Cornwall, Devon, &c.—THE SECOND VOLUME will appear early in FEBRUARY next, with ADDITIONAL TABLES and STATISTICS, connected with the Mining Interests.—Names of subscribers are requested to be addressed to Mr. H. English, 25, Fleet-street.

PARTNERSHIP,—WANTED, by the Advertiser (a practical engineer), a GENTLEMAN with CAPITAL (£1500 to £2000), to JOIN in the CARRYING OUT of a NEW and VALUABLE INVENTION, which has been patented and rigidly tested by competent authorities, the Advertiser having works established and an extensive connection.—For further particulars apply to Messrs. Hancock and Young, solicitors, No. 20, Tokenhouse-yard, City.

TO CAPITALISTS.—The Advertiser, who possesses a most VALUABLE INVENTION, wishes to MEET with a CAPITALIST who will JOIN HIM in CARRYING OUT the SAME. The invention is secured by two patents; its value is fully proved, and orders to a considerable extent may be immediately had. If properly carried out, it cannot fail to realise an immense return on the capital embarked. The advertiser will treat liberally with a party disposed to enter into the matter in a spirited manner.—Address (by letter, pre-paid) "S. K.," care of Mr. George Shaw, Patent Offices, Cannon-street, Birmingham; or to "S. K.," care of the Editor of the *Mining Journal*, 26, Fleet-street, London.

TO MILL MANAGERS.—WANTED, in an extensive IRON-WORKS in SOUTH WALES, a MILL MANAGER, who must fully understand the Process of Manufacture from the Blast-Burnaces to the finished Iron. Unexceptionable references must be given. The applicants must state their age, whether married or single, the name of the establishments where they have been previously engaged, and salary expected.—Applications (in writing) to be made to "A. B.," care of the Editor of the *Mining Journal*, 26, Fleet-street, London.

TO IRONMASTERS AND MANUFACTURERS.—TO BE LET, with immediate possession, the MINERVA IRONWORKS, situate in Horsley-fields, WOLVERHAMPTON, consisting of a MILL and FORGE, in complete working order; also a large WAREHOUSE adjoining.—Application to be made at Dr. Mannix's Rooms, Market-place, Wolverhampton.

TO IRONMASTERS.—WANTED, THREE THOUSAND TONS of RAILS and CHAIRS, for a Foreign Contract. The rails to be about 70 lbs. to the yard: payment in cash.—Particulars to be sent to Messrs. Zulueta and Co., Moorgate-street, London, on or before the 15th February next.

TO BE SOLD,—A MOST VALUABLE PATENT—applicable to a great variety of articles in every-day use, and which command an excellent profit to the manufacturer.—For further particulars apply to Mr. J. Baker, commission agent, Wolverhampton.

FOR SALE, BY PRIVATE CONTRACT, in LARGE or SMALL QUANTITIES—

300 cwts. of NEW STONE SAW PLATES, various lengths and gauges, at 7s. 6d. p. cwt.
70 cwts. of BEST CAST STEEL, various sizes, 45s. per cwt.
10 cwts. of SYKE'S (bellmark) BLISTER STEEL, at 36s. per cwt.
10 cwts. of BEST SHEAR STEEL, at 38s. Apply to R. MAY, Leadenhall-street.

STEAM-ENGINE FOR SALE.—TO BE SOLD, BY PRIVATE CONTRACT, a 33-inch CYLINDER STEAM-ENGINE, 6 feet stroke, equal beam, with Steam Case, Brass Air Pump, Boiler and Connections, and Capstan and Shears.—Application to be made to Mr. F. Pryor, Bell Cottage, Redruth.—Jan. 2, 1850.

CAMBORNE CONSOLS COPPER MINES, CAMBORNE, CORNWALL.—OFFICES REMOVED to 22, NEW BRIDGE-STREET, BLACKFRIARS.—London, January, 1850. H. L. T. VON USTER, Secretary.

COURT GRANGE SILVER-LEAD MINES, CARDIGANSHIRE.—OFFICES REMOVED to No. 22, NEW BRIDGE-STREET, BLACKFRIARS.—London, January, 1850. H. L. T. VON USTER, Secretary.

MAESTEG IRON-WORKS.—The ASSIGNEES of the MAESTEG IRON COMPANY having made ARRANGEMENTS with the MORTGAGEES, which have removed previous difficulties, are now in a position to TREAT for the SALE of the WORKS, MINERAL LEASES, and PLANT.

Particulars may be obtained by application to Messrs. Sewell and Fox, solicitors, 51, Old Broad-street, London; Messrs. Whittington and Gribble, solicitors; or Edward Mant Miller, Esq., official assignee, Bristol.—Jan. 8, 1850.

SWITHLAND AND GROBY SLATE WORKS, LEICESTERSHIRE.—These valuable SLATE QUARRIES, containing large beds of Roofing Slate, Slate Stone, Blocks for Cheese Presses, Milk Slates, &c., are TO BE LET, from Ladyday next, on a lease for 7 or 14 years. There is an excellent house on the works, near Groby, with 12 acres of land, and all convenient machinery for sawing by steam and manufacturing slate.—Steward's Hay, Leicester, Jan. 26, 1850.

MINING OFFICES, No. 3, GEORGE-YARD, LOMBARD-STREET, LONDON.—Mr. THOS. P. THOMAS is a BUYER of South Basset, South Frances, South Tolgus, West Wheal Jewel, Cook's Kitchen, East Buller, Wheal Seton, and Wheal Trelawny; and is a SELLER of Providence Mines, St. Ives Consols, West Caradon, Treviskey and Barrier, Wheal Comfort, and Tregorden.

Mr. T. P. THOMAS will at all times feel pleasure in giving information as to the Cornish, Welsh, and Foreign Mines, upon application.

MR. T. A. READWIN, MINING OFFICES, 2, *WINCHESTER-BUILDINGS, OLD BROAD-STREET, LONDON.*

MR. RYE is a BUYER in Stray Park, Treviskey, South Tolgus, Condurrow, and United Mines.—For particulars, apply at his office, No. 77, Old Broad-street, City.

MR. C. S. RICHARDSON, CIVIL ENGINEER, LAND AND MINING SURVEYOR.
No. 15, OLD BROAD-STREET, LONDON.

MR. GEORGE BATE, Jun., CIVIL ENGINEER AND SURVEYOR, *WOLVERHAMPTON.*
Offices in Queen-street, corner of Piper's-row.
N.B.—UNDERGROUND MINING SURVEYS accurately executed.

JAMES LANE, MINING SHARE DEALER,
80, *OLD BROAD-STREET, LONDON.*

BEDFORD UNITED MINES—DECLARATION OF DIVIDEND.—Notice is hereby given, that a FIFTH DIVIDEND of FIVE SHILLINGS per share, on the shares of these mines, will be PAYABLE at this office on Monday, the 4th February next, and on any subsequent day, between the hours of Eleven and Three o'clock. Those parties who have not registered their scrip certificates are requested to leave them at the office two clear days, in order that they may be examined and cancelled; and on the parties signing the Cost-book, agreeably to the resolutions passed at the General Meeting, held on the 9th December, 1847, the dividends due 31st March and 22d December, 1848, 31st August and 23d November, 1849, and 4th February next, will be paid to them. By order of the meeting of adventurers,
50, Threadneedle-street, Jan. 31, 1850. G. KIECKHOEFER, Secretary.

CAMBORNE CONSOLS MINING COMPANY.—NOTICE TO SHAREHOLDERS.—The ANNUAL GENERAL MEETING of the shareholders in this company will be HELD on Thursday, the 21st day of February next, at 22, New Bridge-street, Blackfriars, London, at One o'clock precisely, for the general purposes of the company; and also to take into consideration the expediency of establishing regular monthly or bi-monthly meetings of shareholders in "Local Committee of Consultation," to be held on the mines. The aforesaid General Meeting will be made Special, for the purpose of modifying the directors' qualification, and to transact other business, of which the shareholders will receive notice by the circular letters calling the said meetings.
By order of the board, H. L. T. VON USTER, Secretary.
22, New Bridge-street, London, Jan. 25, 1850.

EAST BIRCH TOR TIN MINING COMPANY (Incorporated pursuant to 7 and 8 Vic., cap. 110).—Notice is hereby given, that the ANNUAL GENERAL MEETING of the shareholders will be HELD at the offices of the company, 2, Winchester-buildings, City, on Tuesday, the 12th day of February next, at Twelve o'clock precisely. T. A. READWIN, Secretary.
London, January 23, 1850.

TAMAR SILVER-LEAD MINING COMPANY AND WORKS.—Notice is hereby given, that a SPECIAL GENERAL MEETING of the shareholders in this Company will be HELD at the offices, Salvador House, Bishopsgate, on Thursday, the 7th day of February next, at Two o'clock precisely, to take into consideration the payment of a dividend and other matters.
Salvador House, Jan. 10, 1850.

UNITED MEXICAN MINING ASSOCIATION.—Notice is hereby given, that a DIVIDEND of SEVEN SHILLINGS and SIXPENCE per share will be PAYABLE at the office of the association on and after the 1st of February proximo, between the hours of Eleven and Three.—Forms for claiming the dividend may be obtained at the company's office, and must be left two clear days for examination previous to payment. By order of the court of directors,
5, Finsbury-circus, London, Jan. 30, 1850. JOHN MATHER, Secretary.

LOANS ON DEBENTURES.—The CALEDONIAN RAILWAY COMPANY are prepared to RECEIVE TENDERS OF LOANS, in sums not less than £500.—Applications to be made or addressed to this office.
By order,
125, George-street, Edinburgh, Dec. 1, 1849. D. RANKINE, Treasurer.

Transactions of Scientific Bodies.

MEETINGS DURING THE ENSUING WEEK.

THIS DAY	Asiatic—5, New Burlington-street	7	P.M.
MONDAY	Entomological—17, Old Broad-street	8	P.M.
	British Architects—16, Grosvenor-street	8	P.M.
	Chemical—142, Strand	8	P.M.
	Medical—3, Bolt-court, Fleet-street	8	P.M.
	Pathological—21, Regent-street, Waterloo-place	8	P.M.
TUESDAY	Linnæan—Soho-square	8	P.M.
	Civil Engineers—25, Great George-street	8	P.M.
WEDNESDAY	Society of Arts—Adelphi	8½	P.M.
	Geological—Somerset House	8½	P.M.
	London Institution—Finsbury-circus	7	P.M.
THURSDAY	Royal—Somerset-house	8	P.M.
	Antiquaries—Somerset-house	8	P.M.
	Zoological—11, Hanover-square	3	P.M.
FRIDAY	Astronomical—Somerset-house	8	P.M.
	Royal Institution—Albermarle-street	8½	P.M.
	Philological—London Library, 12, St. James's square	8	P.M.
SATURDAY	Royal Botanic—Inner Circle, Regent's Park	8½	P.M.
	Westminster Medical—17, Saville-row	8	P.M.

INSTITUTION OF CIVIL ENGINEERS

JANUARY 29.—WILLIAM CUBITT, Esq. (President), in the Chair.

The discussion was renewed on the Rev. Mr. Clutterbuck's paper, "On the Alternations and Depressions in the Chalk Water Level under London."

It was contended, that the water in the upper districts of the chalk accumulated in a proportion increasing with the distance from the river, or vent, and fell off, in a corresponding ratio, during its periodical exhaustion, which usually took place between April and November of each year. This alternation of level which in the upper districts exceeded 50 feet in perpendicular height, would be represented by a line from the lowest vent, rising at an angle to the highest point saturated with infiltrated water. This had been proved by constant observation on wells, at given periods, throughout a certain district; all the springs forming the river proceeded from that source.

From these, and other positions, it was argued, that if water be discharged from a shaft in the chalk, by a power not capable of entirely exhausting it, the rapidity of the reduction of the level would gradually decrease, until it was exactly balanced by that of the supply. This would naturally produce a gradually extending depression of the water in the strata for some distance around; and it was shown to have been the effect produced, by pumping from an experimental well, in Bushey Meadows, in August and September, 1840.

It was urged that the real question to be determined was, whether a supply of water, for London, could be obtained from the deep springs in the sand or chalk. Sections and diagrams were exhibited, to show, by the former, that the supposed basin under London, was not as had been represented by geologists: and by the latter, that from July, 1837, to December, 1849, there had been a gradual depression of full 50 feet in the water of the sand-springs under London; and, in consequence of this serious action, several of the wells had become tidal in some localities, and the water was rendered saline.

At the termination of the discussion, the attention of the members was directed to a serious case of legislative interference, whereby the free exercise of the professional skill of the members of the institution was now unwarrantably trammelled, and the public service materially interfered with. The introduction of wrought iron instead of cast-iron into railway bridges was a recent invention of great value, and of which the most celebrated examples were the Conway and Britannia bridges. The same executive authority which had pronounced the erection of these two bridges to be impracticable, had recently declared that a railway bridge constructed on a similar principle, and of identical materials, was insufficient in strength, although it was much stronger, in proportion to its possible load, than either the Conway or the Britannia, and infinitely stronger than any of the cast-iron girder bridges, which had for years adequately performed the public service, and had been by the same authority pronounced to be perfectly safe. The public had thus already been for a month deprived of the use of an important line of railway, by the application of an antiquated formula to a modern invention.

For these cogent reasons, it was considered that the members had a right to request the interference of the council, on the behalf of the profession at large; and they were urged to take such steps as appeared desirable for allowing the free development of engineering talent; and in the words of the report of a recent Royal commission, removing from "a subject yet so novel, and so rapidly progressive, any legislative enactments, with respect to the forms and proportions of the iron structures" of railways, which could not fail to be "highly inexpedient."—This proposition was received with acclamation.

Mr. Evan Hopkins's great Geological Sections of the Three Branches of the Andes were exhibited in the library. They showed about 260 miles, from west to east, from Choco to the River Meta, in the eastern flanks of the eastern branch of the Andes.

The paper announced to be read at the meeting on Tuesday, February 5, when the monthly ballot for members would take place, was "On the Theory of Transverse Strain, with rules for Calculating and Constructing the Strength of Cast-iron Beams of different forms." By Mr. W. T. Doyne, Assoc. I.C.E.

INSTITUTION OF MECHANICAL ENGINEERS.

The third annual general meeting of the Institution of Mechanical Engineers was held at the Queen's Hotel, Birmingham, on Wednesday week. The attendance of members was very great. In the unavoidable absence of the president, Robert Stephenson, M.P., Mr. J. E. M'CONNELL occupied the chair.—After the confirmation of the minutes of the former meeting, the annual report and statement of accounts were read. The first of these documents showed that the institution now consists of 201 members, that it is steadily progessing both in numbers and with respect to the practical objects for which it was established. Its financial condition is also very satisfactory. On the motion of Mr. W. SMITH, seconded by Mr. RICHARDS, the report was adopted.

Mr. M'CONNELL then remarked, that immediately after the death of their late lamented president, George Stephenson, a memoir of his life had been written by Mr. Scott Russell, and read before the institution, but it was felt by the council that something more than a comparatively temporary expression of opinion was required of them in commemoration of a man who had done so much service to his country, and so much honour to the profession with which he was connected. After mature deliberation, the council had resolved to bring this subject before the members of the institution; and he (the speaker) was confident that if they took the initiative in the matter, the proposal to do honour to the memory of their esteemed friend would meet with a hearty response.

Mr. Alderman GEACH said that, in accordance with the sentiments expressed by Mr. M'Connell, he had to propose a resolution appointing a committee, consisting of the members of council of the institution, and of gentlemen hereafter to be named, to consider the best means of marking, in a lasting manner, the high opinion entertained of the moral worth and scientific character of the late George Stephenson.—Mr. BUCKLE seconded the motion, which was carried.

The ballot papers having been opened, the following were declared the officers of the institution for the present year:—President, Robert Stephenson, Esq., M.P.; vice-presidents, Charles Beyer, Manchester, J. E. M'Connell, Wolverton, John Penn, London; treasurer, Charles Geach, Esq.; secretary, W. P. Marshall.—A vote of thanks was given to the council, and the business of the annual meeting having terminated, Mr. M'CONNELL proceeded to read a supplementary paper

ON RAILWAY AXLES.

in continuation of the discussion commenced at the last meeting.

Mr. M'CONNELL'S remarks were almost exclusively confined to the important consideration whether iron, once fibrous in its structure, changes to a crystalline form by vibration, such as that to which railway axles are subjected. It will be remembered that at the last meeting Mr. R. Stephenson mentioned his opinion that such a change did not take place. The following are the chief points touched upon by Mr. M'Connell. In confirmation of his theory, Mr. M'Connell first referred to an axle which was fixed in cast-iron wheels of the pattern in use on several lines of railway, having the H form of spoke, and which broke in ordinary working close at the back of the wheel, as was usually the case, and the fractured ends, which were now produced, afforded the most distinct proof of an annular space all round the surface of the fracture. This was not only short-grained and crystalline, but there was also a distinct separation to the extent of the annular ring, which it would appear takes place some time before the final fracture, as if each successive blow, heavy or light, lateral or vertical, received by the wheel, had tended to destroy its proportion of cohesion of the previously crystallized substance of the axle, at the particular place where the fractures occur. On receiving the axle at the workshops with one wheel still attached, it was allowed by accident to fall a short distance to the ground, and so brittle had it become that the other end at once snapped, and it presented an exactly similar appearance to the original fracture. He was anxious to ascertain how far the theory which he held was correct, that the deterioration of the axle was principally local at the back of the wheel, and with this view tested the centre of the same axle by letting 17 cwts. of iron fall upon it through a space of 14 feet; but after several attempts he found that no impression could be made towards effecting a fracture. He then tested it by the hydraulic press, and it had been bent to the form of the letter O, without its showing more than the slightest appearance of the skin of its surface breaking. He attributed the crystallization of the axle at the point close behind the wheel to the sudden stoppage or re-action of the vibratory wave at that place, owing to the check which it meets from the mass of matter, consisting of the wheel, &c., presenting a break of surface, and causing the vibration to react like a blow on the neck of the axle, (the nearest weakest point,) and thereby destroying the fibrous strength. Cast-iron wheels, therefore (continued Mr. M'Connell), from their rigidity and non-absorption of the lateral and vertical concussion with other strains formerly enumerated, received in course of working, and transmitted so as to be wholly expended on the axle, are objectionable, and he illustrated this by experiments with two axles of the same description and age, one being placed in cast-iron and the other in wooden wheels, the latter being those known as the Pimlico make. In the experiment with the wooden wheels, a weight of 17 cwts. was allowed to fall through a distance of 18 feet upon the axle immediately within the wheel, by which it was slightly bent at the point, and a portion of tire resting on the rail was broken clear out. The experiment was repeated four times on the other end of the axle, which was bent but very slightly, and the wheel was rendered completely useless. The same experiment was made upon the axle with cast-iron wheels, when the effect of the first blow was to break the axle at the back of the wheel, thus proving that in the one case the axle was saved by the wooden wheel absorbing its full share of the effect of the blow, and the tire of the wheel breaking proved that in course of working it would receive a portion of the deteriorating forces tending to crystallise, the wheel acting like a cushion to soften the blows before they reached the axle. The rail supporting the cast-iron wheel was fractured in three places. Mr. M'Connell had also made experiments with a view o determining the effect produced on the fibre of the iron by the cold hammering process, and these satisfied him of the enormous amount of deterioration which was thus produced. Another experiment (all of which were detailed) proved that great injury resulted from the practice of throwing cold water upon an axle to cool it, when it had become nearly red-hot from the want of proper lubrication of the journal. Samples of broken wheels had been sent him from various quarters, which completely subtantiated his opinion of the crystallising change, and he also called the attention of the meeting to experiments he had tried in relation to the proportion and form of axle, in order to meet the objection raised that the slow pressure applied on the flange of the wheel, to discover where the axles were most exposed to tension, was not a faithful representation of what took place in practice. These, as he showed, established the rule of proportion of the axle quite in accordance with the former results.

After reading communications he had received from Mr. John Kekwick, of Rotherham, and Mr. Benjamin Gibbons, of Shut End, Dudley, adding their experience in support of Mr. M'Connell's opinion, he went on to state, that the practical suggestions which he deduced in this matter were—First, that the axles of all railway engines, carriages, and vehicles, should be made of the best ascertained quality of iron for the purpose, both tough and strong, and of uniform clear fibrous texture. Secondly, the proportion of axle in all its parts to be determined from sound experience and calculation, the load it has to carry, the speed at which it is run, and the description of wheel in which it is placed, and strains to which it is liable in working from curves or inequalities of the road, or other deteriorating causes being fully considered. Thirdly, that previous to any axle being allowed to run on any line, the maker's name should be legibly marked thereon, with the date of manufacture, and also when it was first put to work, which would afford the necessary data for forming an opinion of the age beyond which limit the iron becomes comparatively unsafe. Fourthly, that it be part of the duty of the proper officer to see that all axles are working in good condition, and receiving careful treatment. Fifthly, that all who have the opportunity for registering facts in connection with railway axles, should place them at the disposal of this or some recognised scientific institution. Sixthly, that attention should be given to the description and working condition of wheels which in all points cause the least deteriorating effects on the axle, and, lastly, that the quality of lubrication and description of bearings should also be considered. Mr. M'Connell concluded, by observing, that it was obviously of most material advantage to all connected with machinery, whether for railway, manufacturing, or mining purposes, to have their attention directed to all the phenomena bearing upon the nature, use, stability, and durability of the iron or other material of which that machinery is constructed, as it was manifest that they must first obtain a clear knowledge of the best quality, the best form, and the best treatment necessary, to select and prepare it for use, and to preserve it and prevent any deteriorating causes, as far as possible, in order to obtain the greatest safety, efficiency, and economy, in working the machinery for the purpose it is intended to effect.

Very little discussion followed the reading of this paper, as it was considered that the importance of the subject, and the experiments made by Mr. M'Connell, demanded careful consideration; besides, the absence of the president, who had taken much interest on this subject, rendered it the more necessary that the question should not then be disposed of.—Several members addressed the meeting, principally in confirmation of Mr. M'Connell's opinion that a change in the molecular structure of iron does take place from vibratory action.—The discussion stands adjourned.

The next paper read was on "Railway Springs," by Mr. W. A. Adams, of Birmingham, which we shall give in our next Journal.

ON THE CONDENSATION OF STEAM IN THE ENGINES OF THE SOUTH STAFFORDSHIRE IRON DISTRICT, AND THE IMPROVEMENTS TO BE EFFECTED IN THEM.

BY WILLIAM SMITH, DUDLEY.

The object of this paper was to show the present working condition of 48 of the largest class of mill, forge, and blast-engines in South Staffordshire, and to consider the practicability of improving them. The paper was accompanied by a series of diagrams, showing the difference of vacuum in each of the engines noticed. The references to these diagrams render any attempt to convey an accurate idea of the value of the paper, labour lost. The general results, however, may be stated, and they are of great importance to the district. It appears, then, that the aggregate power of the 45 engines shown in the diagrams is nominally 3240 horse power, according to Boulton and Watt's proportions of the cylinders, but by the calculation of indicator diagrams the total is 7819 horse power. The average vacuum obtained in the present working of all these engines is about 6 lbs. per inch below the atmosphere throughout the stroke, and the average vacuum obtained in six expansive engines is 10½ lbs. per inch below the atmosphere throughout the stroke. The loss of power from the imperfect vacuum in the former engines may, therefore, be taken at the difference between these pressures, or 4½ lbs. per inch, which amounts to 1930 indicated horse power upon these forty-five engines; or, in other words, 25 per cent. increased power might be obtained from the same expenditure of steam, and consequently of fuel, if the vacuum were improved, so as to be as good as the average of the six expansive engines. The annual loss in money by extra consumption of fuel by these 45 engines, calculating 20 lbs. of slack per hour for one horse power, at a cost of 3s. per ton, will amount to 18,610*l.*, or 2*l.* 7s. 7d. per horse power per annum. The total power of the steam-engines employed in the manufacture of iron in this district might be computed to be ten times the nominal power above named, and the total annual loss to the proprietors from the causes described may be taken in round numbers at 180,000*l.* per annum. It has been generally considered that the improvement of expansive action of steam was not applicable advantageously to the engines of this district, because of the small cost of the fuel employed; but the facts stated show how erroneous this notion is. In addition to the saving in cost of fuel, an important saving would be effected in the tear and wear of the boilers, which is fully in proportion to the extra fuel burnt under them, and the repairing of which is invariably attended with serious inconvenience and expense. As the limited time of the meeting would not permit a full discussion of this important paper, it was resolved to adjourn it till next assembly.

A cordial vote of thanks was passed to Mr. Smith; nine new members were elected; and the meeting then adjourned.—*Birmingham Journal.*

PREVENTION OF OSCILLATION IN LOCOMOTIVE-ENGINES.

At the Society of Arts, on Wednesday evening last, a paper, by Mr. George Heaton, of Birmingham, "On the Cause of the Oscillating Motion in Locomotive Engines at High Velocities, and a Method for Correcting it," was read by the SECRETARY—the author illustrating the remarks at intervals by an excellently-constructed model, representing the mechanical movements of a full-size engine on a scale of one-eighth. It consisted of two wheels, mounted on a strong frame, representing the driving-wheels, and connected by multiplying gear to a winch handle, by turning which comparatively slow, the results of a speed of 40 miles per hour could be minutely shown; the piston-rods were attached to pulleys, running in horizontal guides, which thus represented the cylinders and pistons.

The writer of the paper commenced by stating that his object was more particularly to illustrate the laws of motion, and place an old property of mechanical action in a new light, than to endeavour to establish a new doctrine. When a man walked upright, on placing his right foot forwards, he threw his right hand in the same direction, and his left arm backward; on advancing his left foot, his left hand followed its direction, and the right arm was thrown back. This counteracting motion, which came naturally and instinctively, kept the body upright; and he had endeavoured to apply the principle to prevent transverse oscillation in locomotive engines—from the effects of which they were frequently thrown off the rails, and the most lamentable accidents occurred.

Many theories had been advanced by engineers, and causes ascribed to this motion; one of which was, that the engines and trains should be kept firmer, and screwed up tighter together; and this had some beneficial effect in preventing oscillation, but caused a considerable loss of power. In 1846, a serious accident occurred through the engine leaving the rails; and, as the road was in excellent condition, and the engine and train in good working order, no reasonable account could be assigned for the accident. Capt. Simmonds, the Government Inspector of Railways, attributed it to the fact of the train being light, with a heavier engine than usual; but nothing satisfactory was elicited. Some engineers considered much was due to the particular time at which the steam entered the cylinder, and which led to peculiar arrangements of cutting off the steam at different points before the end of the stroke, and such modifications had been found of considerable benefit; still oscillation continued, and Mr. Heaton has devoted some years to the consideration of the cause, and production of a remedy.

The model we have described above, represented a locomotive engine with 6-ft. driving-wheels, 16-inch cylinders, and 22-inch stroke, the cranks placed on the shaft at an angle of 22½° with each other. On giving to the wheels a movement of 2400 revolutions per minute, they represented a locomotive under a velocity of 42 miles per hour, and the oscillation evidently taking place, from the unequal concussion of the pistons at the dead parts of the stroke, was so great as to cause the frame-work to vibrate transversely some 2 or 3 in. from its position at each end alternately, as if turning backwards and forwards on a central pivot. Experiments were then shown with the wheels weighted on one side to balance the force of the crank motion, and which, although this had some effect at moderate speed, did not cure the oscillation at the highest velocity. It will be found when an engine of 20-in. stroke, with 6-ft. driving wheel, goes 15 strokes per minute, or 3 miles per hour, it requires one-tenth of the weight moving along the horizontal line (that is the piston and gearing moving backwards and forwards within the engine framing) to stop it and turn it again; at 35 strokes per minute, or about 7 miles per hour, one-half its weight; at 74 strokes per minute, or about 15 miles per hour, one and a half times its weight; and at 100 strokes per minute, or about 20 miles per hour, four times its own weight will be required for the same purpose.

Mr. Heaton now came to the means he had adopted as a preventive of this injurious and, to railway passengers, unpleasant effect, which he effects by connecting to an auxiliary crank-pin a rod of similar length with the piston-rod, to the other end of which is a pulley, working between guide-rods placed on the opposite sides of the axle to the cylinders, thus obtaining a counteracting force, preventing concussion. The weight must be equal to the piston and its gearing, so as to make the weight run to the left hand at the same instant the piston goes to the right, the blow to stop the piston, and make it return at each end of the stroke, will be received in the auxiliary crank instead of in the wheels, producing a neutral point in the centre, and steadiness of motion; for when the blow is received in the wheels, the cranks being at right angles, it is communicated through the axle, and gives a twisting motion to the whole framing of the engine; this being repeated with regularity, produces an effect similar to rocking a boat; this oscillation is found to be greatest when the engine is running most regular for speed, and the piston going the same way with the oscillation of the carriage. The effect of this counteracting motion, when in operation, was distinctly and beautifully apparent.

On turning the machine at the most rapid rate it appeared possible to do, the wheels revolving at an enormous velocity, not a tremble in the model could be detected, and it remained as steady as if screwed down to the table on which it stood. The effect appeared convincing to a numerous audience, who testified their approval by a general clapping of hands.

Some discussion ensued, and a Mr. MURRAY, who was said to have had much experience on the locomotive, attempted to show that all the accidents from engines running off the line arose from a vertical or pitching motion, and not horizontal transverse oscillation, but which (we think unsound) theory did not appear to gain converts.

Mr. HEATON stated that, by the most careful experiments made by him, he found that, by adding this counteracting motion, although involving a slight additional friction, the result was that, besides the steadying effect to the engine, there was a saving in power of 15 per cent. In the model, one of the connecting-rods worked on two levers in a toggle joint, instead of pulleys and guide-rods; but Mr. Heaton said it was only two mechanical arrangements in producing the same effect, and he preferred the latter, as easier to construct.

The thanks of the society were voted to Mr. Heaton.

Proceedings of Public Companies.

MEETINGS DURING THE ENSUING WEEK.

THIS DAY	Barossa Range Mining Company—offices, at Twelve.	
	Law Life Assurance Company—offices, at half-past Eleven.	
MONDAY	Caledonian Railway—London Tavern, at One.	
TUESDAY	Caledonian Railway—Freemason's Tavern, at Twelve.	
	Fire Annihilator Company—offices, at One.	
WEDNESDAY	Alliance Marine Assurance Company—offices, at Eleven for Twelve.	
THURSDAY	Tamar Silver-Lead Mining Company—offices, at One.	
	London and County Joint-Stock Bank—London Tavern, at One.	
	European Gas Company—offices, at Two.	
	British Annuity Company—offices, at One.	
FRIDAY	Electric Telegraph Company—offices, at Two.	

[*The meetings of Mining Companies are inserted among the Mining Intelligence.*]

CAMERON'S STEAM-COAL, AND SWANSEA AND LOUGHOR RAILWAY COMPANY.

The ordinary general meeting of shareholders was held at the offices of the company, Moorgate-street, City, on Tuesday, the 29th January,

E. G. WINTHROP, Esq., in the chair.

Mr. ELDERTON, the solicitor (in the absence of the secretary), read the report of the directors, which was as follows:—

The directors have to remind the shareholders that the present meeting is altogether of a formal character, and is convened in pursuance of the provisions of the Act of Parliament 9 and 10 Vic., c. 401. The shareholders are aware that after two consecutive meetings, they have empowered the directors to construct a branch line, connecting the company's colliery with the port and docks of Llanelly, and the directors are taking the most active steps to carry forward these instructions. With reference to the main line to Swansea, the directors are still strongly impressed with the advantages to accrue to the company from the construction of such line, when the same shall be made. As a property, it will be greatly enhanced by the circumstance of the harbour at Swansea being about to be immediately floated, thereby making the company's wharf and railway much more valuable, and also by the circumstance that the docks at Swansea (which were greatly promoted by this company) appear now to offer a reasonable prospect of being completed.

The CHAIRMAN said the report was short, but contained everything that was necessary to be stated at that period. As to the branch railway to Llanelly, for which they had the sanction of the shareholders, they were progressing as fast as possible; and he hoped, by the co-operation of the shareholders, to be able to carry out that great object without further delay. Although the contractor had acted most liberally as to his terms, yet they must be aware how necessary it was to meet his payments when due. (Hear, hear.) He would now move the adoption of the report just read to the meeting.

Mr. HAWES asked if there was no financial statement?—The CHAIRMAN said it was not rendered necessary for this meeting, as it was merely for the purpose of giving information as to the railway.

Mr. ELDERTON observed that they merely complied with the Act of Parliament, which made it compulsory to hold a meeting in January, whether they had little or nothing to report. He would draw the attention of the shareholders to the valuable aid afforded by their manager, Mr. Atkinson, who had saved them the large expense of an engineer, which was of importance. (Hear, hear.) It was gratifying to find that they even could now go on constructing this short line without impediment, as far as he was aware. The docks now constructing at Swansea could not fail to be highly beneficial to this undertaking; and, in reference to that subject, he might say, that without the aid of the directors of this company the bill of the promoters would never have passed Parliament. To show the importance of the docks at Swansea, the corporation of that town were now applying for power to take shares in the dock company. (Hear.) Another circumstance of a favourable nature was this, that the Duke of Beaufort, who was once a great opponent to this scheme, was now its advocate, and his son, the Marquis of Worcester, was about becoming a director of the dock company.

Captain NORCOTT, R.N. (a director), said the wharf of this (the Cameron) company was in the best possible quarter of the river. The great arch was finished, and he hoped all the works would be completed by the end of July.

Mr. FISHER seconded the adoption of the report, which was passed.

Mr. SMALLBONE (a director) said, the only object of the directors was to make this property what it ought long ago to have been—a most valuable one. He had no fear of that being the case before long; it was his firm opinion.

Mr. HUGHES said, if they did not try to do so under the present favourable circumstances, they might never be able to do so again.

Mr. HAWES moved a vote of thanks to the chairman and directors, for their zeal and perseverance in adhering to the undertaking.

Mr. DICKENSON seconded the motion, which was passed unanimously.

Mr. BARHAM (a director) proposed a very complimentary vote of thanks to Mr. Atkinson, the company's manager, for his valuable services to the company.

Mr. HUGHES seconded the motion, which was passed unanimously.

The meeting then separated.

SWANSEA DOCKS.—The Lords of the Treasury, in answer to the deputation which last week waited upon them from Swansea, have agreed to the appropriation of a portion of the corporate funds to the construction of the new docks. The town clerk, Mr. Harry, and Mr. Jenkin, as solicitor for the dock company, have proceeded to London to arrange the necessary preliminaries for introducing the bill to authorise the junction of the corporation with the company. The difficulties which have hitherto stood in the way being thus removed, it now only remains with the various interests concerned to decide as to the advancement of the means, in a pecuniary sense, by which the docks, so desirable for the prosperity of the town, shall be completed at the earliest period.

THE SUNDERLAND DOCKS.—Mr. John Murray, the engineer, to prevent any exaggerated statement respecting the influx of water from the River Wear into the Sunderland Docks, which took place on Sunday, by a leak occurring in one part of the temporary cofferdam contiguous to the pumping engine, and that, notwithstanding every effort to arrest it, filled the dock in the space of 24 hours, has thought it right to state, for the information of the shareholders and the public interested in that work, that no injury of any kind has been done to the walls, gates, or other works; but that the only consequences will be the cost of stopping the leak in the dam, and the pumping out of the water, which are estimated in the aggregate not to exceed 1200*l.*, and three or four weeks delay in opening the docks.

Original Correspondence.

MANUAL POWER ON BRANCH RAILWAYS.

RESPECTED FRIEND,—I observe, in your last Journal, that the branch line to Tewkesbury, on the Bristol and Birmingham Railway, about two miles long, is now worked by a horse, as being more economical than the steam locomotive. As economy in railway working seems at last thought needful, I would suggest that, under certain circumstances, manual power might be still more advantageously applied than horses on branch lines where the traffic will not warrant the adoption of steam. There are few branch stations but employ two or more porters at each end, and who have but little to do between the arrival and departure of trains. Suppose, therefore, there may be (say) four porters so situated, as soon as the train on the main line is dispatched, let there be a machine provided, at which four or more men may work, similar to working a crane. Four men at a windlass is supposed to be about equal to an ordinary horse, and, therefore, they may be advantageously employed, when not otherwise required, in conveying the passengers upon the branch line, thus saving the entire expense of horses, which, I understand, on a branch line, on the Bristol and Exeter Railway, about 1½ mile long, costs 10*l.* per week for horse-power, which *four able-bodied porters could easily accomplish; for, with a properly-constructed machine and carriage these four men could propel* 20 *or* 30 *passengers in from* 10 *to* 15 *minutes*, which may be thus proved:—The line being level, and allowing the friction to be (say) 9 lbs. per ton, the power to move 4 tons on such a line would be only 36 lbs. It is admitted that four men can exert a power equal to lifting 150 lbs. 4 ft. in a second, which is nearly at the rate of three miles per hour; let it, then, be mechanically arranged that the speed be doubled, and, consequently, the power diminished in like proportion, there would then be 75 lbs. to overcome 36 lbs., the presumed friction of 4 tons. This the same men could do 10 or 12 times each way per day, and still allow time to attend the arrivals and departures on the main line. In all cases where speed is an object, *manual power is much more economical than horse-power, or even steam-power, where the traffic is of a limited amount*, which may be thus illustrated:—Suppose a level road, of (say) 120 miles in length, to be provided with a perfect timber track in the middle, and kept free from obstructions, and the friction thereon to be about 12 lbs. per ton, and a proper machine be made to run thereon, to accommodate eight able-bodied men, who can exert a power equal to 300 lbs. at a speed of *three miles per hour* 10 *hours a day*; then assume we wish to travel 12 miles per hour, to do which we should have 75 lbs. effective power; let it be assumed that the machine, carriage, and 25 passengers, be 4 tons, the friction being 48 lbs., leaves a surplus power of 27 lbs. I am quite aware that on an undulating road the gravity of the load must be taken to account; but it must be also observed, that I have only assumed the power which a man can exert 10 hours a day; he can, therefore, exert two or three times the power when needful for a short period; in addition to which, a mechanical contrivance may be applied, so as to give *three or four times more power, with, of course, a proportionate diminution of speed*; thus the men *might occasionally, for a short time, by such means, apply a power from* 2000 *to* 3000 *lbs., which would overcome the steepest gradients occurring on ordinary turnpike roads.*

Now, the men, by working 10 hours, could convey the 25 passengers 120 miles, and as able-bodied men may be procured at 2*s.* 6*d.* per day (even in England) would make the cost of conveying, say 10 inside, and 15 outside passengers 20*s.*; and suppose the charge of outside be 3*s.*, and inside 5*s.* each, would make 4*l.* 15*s.*, leaving 3*l.* 15*s.* gross profit!

I scarcely need add that great care should be directed in constructing the machine, so as to reduce the friction to the utmost degree, otherwise great disadvantage may result by the loss of a quarter, or even one-third, of the power, through want of proper attention to the accuracy in fitting and finishing the mechanical parts. Great care should also be directed to the construction of the passenger carriage, so as its weight might not exceed ¾ to 1 cwt. to each passenger; it should be provided with shafts for the horse, similar to those formerly used on the Edinburgh and Dalkeith Railway, where one horse drew from 40 to 60 passengers, at the rate of 10 miles per hour; the price paid by the company was ½d., and the charge made by them to the public was ¾d. per mile. Now, on the short branch alluded to on the Bristol and Exeter Railway, a first and second-class carriage, of the same ponderous description as used on the trunk line, weighing from 10 to 12 tons, was adopted, drawn, or, rather, *towed like a barge on a canal*, by two or three horses, to convey, on an average, not exceeding 10 to 12 passengers each trip, which I was assured by one of the porters was the fact; this extraordinary system was begun when I. K. Brunel was engineer in chief, and has been continued up to the present time.

The eminent engineer, Thomas Tredgold, suggested that for light loads and *rapid motion* manual power might be advantageously employed upon railways, and I quite agree with him—of which I was satisfactorily convinced about two years ago. Being at Birmingham, I saw at the Vauxhall station a machine, which they called a "lorry," made for the purpose of conveying men and materials on the railway for the use of the contractor for the maintenance of way; it was very roughly made, and in bad condition, and weighed about 7 cwts. Such was its imperfect state, that I have no doubt but that one-half of the power applied was lost in overcoming the friction of its machinery. I got permission to make a trial of this imperfect machine, which was worked by two men, who easily conveyed myself and two other persons about 10 miles under the hour, and returned in nearly the same time; and the men informed me that they thought they could perform such a feat five or six times a day, which would be as much as 12 horses could do on a common road, showing, therefore, the great advantage of a rail or good *timber track*. THOMAS MOTLEY.

Stangate, Lambeth, 1 *mo.*, 29.

P.S. Had the machine to which I have alluded been made as perfect as I know a machine might be made, instead of drawing 14 or 15 cwts., the same power would, I have no doubt, have drawn double the weight; and thus the united efforts of eight men applying the power—viz.: 300 lbs., *at a velocity of* 4 ft. *per second*, which they can continue to exert 10 hours per day—would move on a level railway from 5 to 6 tons, at the speed of from 10 to 12 miles per hour. Supposing this to be correct, let us see what would have been the effect if such a plan had been adopted on the Edinburgh and Dalkeith Railway. I have stated that on that railway, one horse drew from 40 to 60 passengers at 10 miles per hour. Now, let it be imagined that eight men (making ample allowance for friction) to be equal to the horse, and that they effect the distance (eight miles) in three-quarters of an hour, and assume that the men could exert the required power 10 hours a day, then we can suppose that they could make 12 trips in a day, and allot 40 passengers each trip, would be 480, conveyed at the cost of eight mens' labour (say), 2*s.* 6*d.* per day, 1*l.* The *company paid the contractor* 2*d.* each passenger, which amounts to 4*l.*; it, therefore, appears probable that, had this plan been adopted, they could have saved at least 2*l.* per day on that number of passengers, besides saving the repair of horse track, 240*l.* per annum. According to Prof. Leslie's statement, a horse at two miles per hour can exert 150 lbs.; at four miles an hour, 64 lbs.; at six miles, 36 lbs.; at eight miles, 16 lbs.; at 10 miles, only 4 lbs.; and at 12 miles per hour its tractive power ceases; and, therefore, the advantage and economy of manual power: for the man can exert the same power, whether going at the speed of 5, 10, or 20 miles per hour.

RAILWAY MANAGEMENT—PRACTICAL REFORM.

SIR,—I beg to submit a few remarks in answer to the intelligent "Shareholder's" letter in last week's Journal. Before, however, I allude to his communication, perhaps you will permit me to make a few further observations relative to my suggestions on railway management, already before your readers. The facts recorded in my communication respecting the amount of work performed by steam-power in private establishments, compared with railway locomotive engines, has not been disputed, nor yet has any of the "indefatigable railway managers," as they were termed in 1845, ventured to assert that a locomotive engine is incapable of performing the amount of duty (daily) mentioned by me; and whatever be the amount of labour performed in private establishments, public companies certainly have a reasonable right to expect something like an approximate return from their works; if such cannot be done, confidence in public bodies must remain as it is—at a discount. With your permission, Mr. Editor, I will now endeavour to illustrate the amount of labour performed by the engine-drivers in the coal and iron mine districts, and then compare it with that of the locomotive engine-drivers. The wages of drivers in the mining districts will be found to range between 12*s.* 6*d.* and 16*s.* per week, for which they are obliged to be in attendance on their respective engines at half-past 4 o'clock in the morning to get up the steam, &c., in readiness for the workmen to descend into the mines at half-past 5; from this hour the engine is in almost constant operation, until half-past 6 in the evening. At an interval of every four or five minutes, the draught—a load of coal or other mineral—arrives at the surface, when the driver must be at his post to stop the engine; and so nice and accurate must be all his observations, that should he permit the engine to run, or make one stroke too much, or even dose asleep, the result would be the immediate destruction of life and machinery; together with this great responsibility, he performs the office of stoker, attends to the boiler, &c. From this it will be readily observed, that from half-past 4 o'clock in the morning, until half-past 6 in the evening, his labour is incessant. If we take into consideration the number of engines, the amount of life and property intrusted to the hands of these men, accidents from neglect are, indeed, of rare occurrence. Some engines draw out of the pits from 200 to 300 tons of mineral per day, at a cost of 2*s.* 6*d.* for the superintendence of the steam department.

Now, Sir, for a cursory glance at the amount of labour performed by locomotive engine-drivers. These we shall find comparatively great personages, with servants to wait upon them (stokers and cleaners), who get up the steam, &c., preparatory to commencing their duties; they may oil the engine, which, perhaps, runs from 50 to 60 miles per day—a work of two or three hours—when his labours may be considered as over; while his engine is in motion, every precaution is taken to keep his way clear, and signals displayed to warn him of danger, should any exist; and for this trifling amount of work he receives a salary of from 7*s.* to 8*s.* per day, and extra clothes to keep him warm. Compare the amount of labour with that performed by the mining engine-driver.

I will now mention the average duty of locomotive engines, taking, as an example, those on the South Devon Railway. These engines make one trip, or 53 miles, one day; two trips, or 106, the second; the third day the engine is put in the shed to rest; so that the average daily duty of an engine is 53 miles, or, say, the work of about two hours; the remaining 10 hours appears to be on the hands of the stokers and cleaners, who employ the time in rubbing the useless brass ornaments, and polishing the bright work about the engine, which, if painted, would be far more preferable, when all this useless expenditure could be dispensed with. Now, Sir, however ill-informed, or dogmatical, amateur railway reformers may be in their views, I trust I have clearly proved "Shareholder's" assertion, that the engines are over-fed and under-worked, and that the officials and artizans do little or nothing for the enormous salaries they receive.

Your correspondent, like many others, appears able to have opened his eyes to my statements, and given his verdict accordingly. Again, what would be said of a steam-ship at sea, if after it had worked three or four hours, the engineer stopped the machinery to clean it; or what would be the use of steam machinery in the extensive establishments mentioned in my last, if conducted upon the principles of railway management? Perhaps "Shareholder" will answer me the following question:—Do you expect that these over-fed and under-worked gentlemen will reduce their wages, and do more work until they are compelled? It may be asked, what should be about the cost of working a train on a railway—say, 100 miles in length on the system I have proposed. It is obvious, at a speed of 33 miles per hour, this is but the work of, say, three hours, and I would propose the following rate per 100 miles:—Engine-driver, stoker, and for cleaning the engine, 10*s.*; three guards, at 3*s.* each, 9*s.*; coke for engine, at 20 lbs. per mile, say, 1*l.* 1*s.*—total, 2*l.* For oil and grease, say 5*d.* per mile working expenses, and it is clear that if the suggestions I have made are carried out, and the engines run 200 miles per day, which it is well known they are capable of performing, instead of being confined to the engine-sheds every third day like so many invalids, that both engine-drivers and guards will be better paid than any other class of mechanics in this country or any other.

It might be inferred, that I wish to reduce the men's wages; but, in order to correct such error, we will suppose that an engine runs 200 miles per day, for which the drivers will receive 20*s.*—out of which he has only to pay his stoker, and a person to help to clean his engine—that is, if he does not like to work himself. It will be clear, then, that the guards will make 6*s.* per day each. I think this will clearly show that I reduce no man's wages, yet materially diminish the expenditure.

Having shown what ought to be the cost of the superintendence and fuel of each train, we now come to the repairs of the engines; and, for illustration, will suppose that in 313 working days an engine runs 63,600 miles, or 200 miles per day, and to the above add 1½*d.* per mile for repairs, this sum will amount to 397*l.* 4*s.*, or nearly one-quarter the cost of a new engine. If it should be disputed that this sum is insufficient to keep such an engine in repair, the only answer and practical test will be to offer this price for public competition, and see the numbers of tenders with guarantees there will be for the job, and it will be found that I have been 50 per cent. too liberal in my estimate; or taking all wear and tear of engines and carriages into consideration, railways can and will be worked for from 8*d.* to 10*d.* per mile, but I must inform your correspondent, that present railway bombastic notions must give way to practical economy—the only effectual method of arriving at which is to enforce the suggestions I have already made.

I certainly cannot conceive what your correspondent means in stating that, "in diminishing the expenses the safety of the passengers would be hazarded, and the working staff more complicated and difficult." I cannot possibly imagine a more complicated or expensive system than the present can be adopted. On a great number of lines there are not more than from six to eight trains per day; where would be the complication in contracting with the engine-drivers and guards for the conveyance of this number of trains? Perhaps your correspondent, or some of the managers of the lines he is interested in, can inform your readers where the complication would be. My opinion (and this after a mature consideration) is, that it will be the means of reducing railway management to the most simple formulæ possible. But of this I am well aware, that any system which will impose more work on these men, who have so long enjoyed the sweets of "company work," they will immediately fly to their "only stronghold and old song," the safety of the passengers. But if you give the annual prize to be contended for in the manner I propose, that will add more to the safety of railway travelling than any other plan you may adopt; also be the means of reducing your overgrown establishments, and the present overpaid and underworked officials be brought to the level of a private firm.

In conclusion, I beg to inform your correspondent that during my engagements on the Austrian State Railways, I received the following hint:—"In the construction of our railways, you must bear in mind our Government will not tolerate English extravagance; we must have good lines at little cost, and which, when constructed, must be worked economically." But, on these railways, matters are differently managed than in England; the board of directors consists of six merchants, bankers, or others, the remaining six being scientific men, who are, in a great measure, responsible for the accuracy of the estimates laid before the board, and presented to the shareholders, and are also empowered to check all whims of extravagant engineers and managers. When any projected viaducts, bridges, stations, or other works were laid before them, the question was immediately asked, whether such works were *requisite*, or was there no possible means of obviating them; and if such was not the case, could these structures not be rendered less expensive by dispensing with outward ornaments and show. And this I will maintain, that there are no railroads in Europe which have been so durably and economically constructed, or so efficiently worked, as the Austrian State Railways.

Fleet-street. GEORGE SHEPHEARD, C.E.

[For continuation of "Original Correspondence," see page .59]

Recipes.

VIENNA GREEN, SWEINFURTH GREEN.—Dissolve 1 lb. of arsenious acid in water; mix 1 lb. of powdered verdigris with warm water, and add the former solution to it; let the mixture stand until the re-action is complete. Sometimes the ingredients are boiled together, when the process is expedited. The addition of more arsenic gives the production a yellowish tint. It may also be made by dissolving 1 lb. of arsenious acid in water, and 1 lb. of verdigris in vinegar, mixing the two solutions, and evaporating the liquor until it crystallises.

TANNED GELATINE, OR ARTIFICIAL HORN.—A manufactory has been established in Paris for the construction of a variety of ornamental articles with this substance. The gelatine is usually obtained from bones by treating them with a weak solution of muriatic acid, and it is afterwards tanned by the common process, as in making leather. Upon becoming hard and dry, it assumes the appearance of horn or tortoise shell, and is employed for the same purposes as those natural productions. It is softened by being boiled in water with potash, when it may be formed into any shape, and the figure preserved by drying the articles between moulds. In the soft state it may also be inlaid with gold, silver, or other metals, and it may be streaked with various coloured materials, so as to re emble the finest and most beautiful woods. It is probable that this substance will soon be brought very extensively into use, on account of its elegance and cheapness.

TO GIVE THE APPEARANCE OF MARBLE TO PLASTER FIGURES.—To 1 oz. of Windsor soap (grated), dissolved in a glazed earthenware vessel in 4 fluid pounds of water, add 1 oz. of bees' wax, cut into thin slices, and when incorporated it will be fit for use. Dry the figure well before a fire, dip into the varnish (which it will at first appear to absorb), and in about two minutes stir the compost and dip it again. Put it out of dust for a week, then rub it gently with a soft linen rag or cotton wool, and a fine gloss will be produced. Great care, however, is necessary to be taken in this part of the process.

PLASTER CASTS OF LEAVES AND FLOWERS.—The following is the process recommended by the ingenious Mr. Deeble, the engraver, at Islington, by which that gentleman succeeds in taking the most accurate and beautiful casts from the leaves and other parts of plants. The leaf, as early as convenient after being gathered, is to be laid on fine-grained moist sand, in a perfectly natural position, with that surface uppermost which is to form the cast, and being banked up by sand, in order that it may be perfectly supported. It is then, by means of a broad camel-hair brush, to be covered over with a thin coating of wax and Burgundy pitch, rendered fluid by heat. The leaf is now to be removed from the sand, and dipped in cold water; the wax becomes hard, and likewise sufficiently tough to allow the leaf to be ripped off, without altering its form. This being done, the wax mould is placed in moist sand, and banked up as the leaf itself was previously; it is then covered with plaster of Paris, made thin, care being taken that the plaster be nicely pressed into all the interstices of the mould, by means of a camel-hair bush. As soon as the plaster has set, the warmth thus produced softens the wax, which, in consequence of the moistnre of the plaster, is prevented from adhering to it, and with a little dexterity it may be rolled up, parting completely from the cast, without injuring it in the least. Casts obtained in the manner thus described are very perfect, possessing a high relief and form excellent models, either for the draughtsman or for the moulder of architectural ornaments.

OIL OF TEAK.—This resinous oil is extracted from a species of teak, a beautiful kind of tree, a native of Pegu, by burning the tree; the woody parts are consumed, which causes a resinous varnish to run freely from all parts of the trunk and branches. This varnish is of a strong aromatic odour, but not injurious to the animal economy, nor productive of headaches, as turpentine is. It is employed in painting wood-work of all descriptions, either pure or mixed with any kind of cement, for this oil takes every colour, from white to black. The oil is drying, and preserves wood from cracks; it repels insects and vermin, preserving wood for many years from being worm-eaten, as well as from the attacks of different kinds of marine animals. For proof of this, the vessels built at Sural and Pegu (which are always carefully coated with this resinous oil, both within and without) last, it is said, three centuries. A ship taken in 1762, by Comte d'Estaing, in the Persian Gulf, was in good condition, although it had been off the stocks 170 years.

ULTRAMARINE.—The mode of preparing this beautiful pigment is to make the stones, called lapis lazuli, red-hot, and throw them into water, when they may be easily pulverised. It is then reduced to a fine powder in a mortar, and intimately combined with a varnish, composed of resin, wax, and linseed oil. It is then of the consistence of paste, and is put into a linen cloth, and repeatedly kneaded, with hot water. The first water is thrown away, the second gives a blue tint of the first quality, and the third yields one of less value. This process is founded on the property of the earthy matter of the stones adhering more firmly to the stone than the colouring matter; the latter is, therefore, separated by washing away.

EGYPTIAN AZURE.—Sir Humphry Davy discovered that this beautiful pigment, which has preserved its brilliancy of tint for more than 1700 years, may be easily and cheaply made:—Fifteen parts of the carbonate of soda, with twenty of powdered opaque flints, and three of copper filings, when strongly heated together for two hours, will produce a substance which, when powdered, will be of a fine deep sky-blue, and closely resemble the Egyptian azure in tint.

PURE GOLD.—A preparation of perfectly pure gold, for the gold wire and leaf manufacturers, and other uses, may be made by dissolving ordinary fine gold, in thin plates, or grains, in moderately strong nitric acid, into which muriate of soda is to be scattered at intervals, whilst a gentle heat is to be applied; sulphate of iron is then to be dissolved in cold water and filtered, as well as the solution of gold; then mix twelve parts of the former with one of the latter, and allow the mixture to rest for twenty-four hours or more. The brownish precipitate is then to be boiled in a little pure nitric acid, and the gold washed with distilled water; finally, it is to be melted with a little pure nitre, and thus a perfectly pure fine gold may be easily and cheaply obtained.

BRUNSWICK GREEN, MOUNTAIN GREEN.—The pigments sold under these names vary very much in colour and in composition. They consist of native carbonates of copper, mixed with calcareous, or other heavy powders; or of artificial compounds, containing arseniate or other salt of copper; gypsum and sulphate of barytes are frequently used in these mixtures. Some of the common greens, sold under the above and other names, are merely mixtures of Prussian blue, or indigo and chrome yellow, with chalk and sulphate of barytes.

CHANGE OF INTERNAL STRUCTURE IN IRON.

In the evidence given before the Strength of Iron Commission, Mr. Rastrick mentions that at the Pontypool Iron Works a bar of wrought iron suspended and continually struck by a hammer at the bottom, dropped in two after a length of time, but he knows of no instance of a change of structure on railways. Mr. Hawkshaw, though he has observed crystallization in broken rails and axles, has not traced it directly to vibration: he thinks mill-gearing and shafts would furnish good examples, though when they break, the various circumstances under which the fractures have taken place should be observed. Mr. Grissell has observed that the vibration to which crane chains are exposed changes the iron from very beautiful malleable iron to the crystalline appearance of cast-iron. He does not consider that cast-iron is subject to the alteration of structure. Mr. Fox considers that vibration does produce a change in the internal structure of wrought-iron, and instances that if the thread of a screw be cut in a wrought-iron bar, and that the bar be broken across the tapped part, the fracture there will be found more crystalline than at the other part; he mentions the frequency with which shafts and mill-gearing break, and states that cold hammering the axles to give them a high polish changes their internal structure; but instead of remedying the injury by annealing, he recommends that they should be finished at a high temperature. Mr. Grissell mentions that chains of cranes often break with a crystalline fracture, which he attributes to a change in the internal structure, but he does not consider the same effect is produced in cast-iron. Mr. Fairbairn states, that repeatedly making a wrought-iron bar red-hot, and plunging it into cold water, renders it crystalline, and that the fibrous texture may be restored by annealing; he considers that percussion renders the fibres more liable to break off short, but that, without it is sufficient to cause a considerable increase of temperature, it does not produce any real internal change. Mr. Glynn considers that the structure, both of wrought and cast-iron, is altered by a succession of blows, the wrought to a crystalline structure, the cast to larger crystals; he has observed this appearance particularly in axles, mill-shafts, toothed-wheels, crow-bars, and crane-chains; the latter, even when especially made of strong fibrous iron, require to be annealed after about three years; the axles of tenders to which breaks have been applied he mentions as particularly subject to this change. He attributes the alteration to galvanic action, induced by the alloys from which iron is never entirely free, and considers that the action is increased by blows. He also mentions that brass wire, of copper and zinc, originally tough and fibrous, continually breaks off short with a crystalline fracture, radiating in the form of a star, showing a change in the structure such as would have taken place if the metal had been melted and had crystallized in cooling: this effect is more rapidly produced in an atmosphere containing sulphuric acid. Mr. W. H. Barlow mentions having caused a piece of fibrous iron to be hammered for a long time by a blacksmith, and that he found the iron changed from a fibrous to a crystalline structure; but as axles do not undergo the same sort of hammering, he does not know whether the same effect takes place in them. Mr. Stephenson considers the fact of an alteration of structure as highly improbable, and cites the connecting rod of an engine having vibrated 25,000,000 times, and yet being perfectly fibrous. In the cases of axles the iron may not have been fibrous in the first instance, for though when a piece of iron is rolled from 1 foot in length to 20 feet it necessarily becomes fibrous, it does not necessarily become so when rolled from 1 foot in length to 6 feet. He says that in all the cases of change of structure which he has heard of there has always been some important link wanting. Mr. Locke considers that concussion would alter the structure of iron, but would not offer an opinion as to whether the fracture of axles arose from that cause; he mentions that a great many axles broke when the crank axles were in use, but that since straight axles have been adopted fewer breakages have occured. Mr. I. K. Brunel doubts the change of internal structure, and thinks the various appearances of different fractures result as much from the mode in which the iron has been broken as in any change in structure, and that change of temperature will also produce a variation in the fracture; that iron in a cold state shows a more crystalline fracture than the same iron warmed a little, and that wrought-iron does not actually become crystalline and fibrous, but breaks either fibrous or crystalline according to the combination of circumstances under which it is broken, but with the combination required he is not acquainted; he cites the stratification and planes of cleavage of rocks, which may be broken with different fractures according to the mode of applying the blow. Mr. Brunel exhibited various specimens broken, some with a fibrous fracture by means of a slow heavy blow, and some with a crystalline fracture, by means of a sharp short blow. Mr. Charles May cites the beam of a steam-engine as an instance of continued vibration not affecting iron, and mentions as an instance in favour of the change in iron from percussion the fact that a gun used in his works to break pig-iron across, at last dropped in two as if it had been cut.

DEFLECTION OF GIRDERS, AND EFFECTS OF PERMANENT LOADS AND CHANGE OF TEMPERATURE.—It is considered that girders should not deflect more than from 1-600th to 1-400th of their length according to the form of the girder. It does not appear from the evidence that a weight equal to what a girder is constructed to carry will, even if left on for any length of time, cause the deflection of the girder to increase, unless subjected at the same time to considerable changes of temperature. Some experiments made by Mr. Fairbairn and Mr. Braidwood show that iron loses a considerable proportion of its strength when heated to a temperature of more than 220° F., and that it becomes uncertain below 32°. Mr. Clark described the effect of the sun coming out and shining on the Conway tubular bridge for half an hour to have been to raise the tube vertically one inch; and he mentions that at night, from the lower temperature, the deflection was always greater than in the day-time. Mr. Fox instances the effect of frequent and great changes of temperature on some short girders, 6 feet long, which support the hoods of the forges in his workshops. In the day-time they are so warm that the hand can only just bear the heat; at night they become cold. The effect is to make the girders *swag*, and the swagging appears to be continually increasing. Some have attained as much as 3" deflection in the centre; but their strength does not seem to be impaired. The general impression of engineers appears to be that the deflection caused by passing a weight at a high velocity over a girder is less than the deflection which would be produced by the same weight at rest; and the increase observed, in many instances, is attributed by Mr. Locke, Mr. Stephenson, and Mr. Fox, to the inequalities at the junction of the rails, or to the jerks of the engine. Mr. Hawkshaw, however, considers that the deflections would be increased. Mr. P. W. Barlow has observed a slight increase, and Mr. W. H. Barlow, in reference to this subject, cites a curious phenomenon which he observed on a timber viaduct—viz., that with a heavy goods train at a low velocity, a certain amount of deflection was produced; but an express train passing immediately afterwards, with a much lighter engine, seemed to push the bridge like a wave before it.

TESTS FOR GIRDERS.—In the evidence before the Strength of Iron Commission, the general opinion as to the amount of test which should be applied to girders appeared to be, that the test should amount to twice the greatest load. Mr. Joseph Cubitt would employ three times the greatest load, or half the breaking weight: and Mr. Thomas Cubitt considers it safer to test a girder almost to the extent that would break it than not to prove it at all, as the testing of girders is the only means of discovering defects under the surface, and concealed from the eye. Mr. Brunel, however, thinks that a girder should not be tested with a weight exceeding the greatest load, as the object in testing is to ascertain the soundness of the casting, which may be judged of by its appearance under the load, and all risk of permanent injury should be carefully avoided. Mr. Rastrick, Mr. Glynn, and Mr. Joseph Cubitt recommend that blows be applied to cast-iron girders when under the testing load. Mr. Hawkshaw, and Mr. P. W. Barlow consider that where actual weight is used sufficient vibration is given to the beam by throwing the weight into the scales used in testing. It is stated that, for convenience sake, girders are usually tested by means of the hydraulic press; but Mr. Fairbairn, Mr. Locke, Mr. Brunel, Mr. Joseph Cubitt, and Mr. Fox prefer using actual weight, on account of the uncertainty as to the actual pressure the hydraulic press brings upon the girder; though the latter gentleman considers that all liability to error in the press is obviated by an improved construction which he has adopted. Mr. C. May states that, as girders are bought at the lowest possible price per ton, the manufacturer is compelled to adopt the most convenient and not the best mode for testing them, or ten times his profit would not pay him for the experiment.

LENGTH FOR SIMPLE CAST-IRON GIRDERS.—The use of simple cast-iron girders in bridges appears to be limited only by the power to make sound castings (which arises chiefly from the difficulty of pouring the metal equally), and the inconvenience of handling large masses. Mr. Rastrick, however, would not put any limit to the length. Mr. Hawkshaw considers that they may safely be made more than 50 feet long; in which opinion Mr. Fox and Mr. Grissell concur, but name 60 feet as the limit. Mr. Glynn, Mr. Charles May, and Mr. Joseph Cubitt would make them from 40 to 50 feet. Mr. P. W. Barlow, Mr. Fairbairn, Mr. W. H. Barlow, and Mr. Stephenson state 40 feet as the limit; and Mr. Brunel names 35 feet, as he does not consider that sound castings can be ensured to a greater length. Mr. Fairbairn, however, mentions a girder in Holland 70 feet long, cast in one piece.

THE BRITANNIA BRIDGE.—A novel and very interesting process in connection with this structure has just been brought to a successful termination—that of the joining of one of the wrought-iron land tubes on to the main span in the recess of the tower, by lowering its extremity 14 inches on to its permanent bed-place, and whereby its weight of 650 tons, acting as a counterbalance over the tower, had the effect of raising up the centre of the main tube, of 1600 tons weight, by upwards of 2 inches, and of course adding materially to its rigidity and strength. A precisely similar operation has to be performed with the land, or terminal, tube on the other side, and by which the centres of each of the grand spans will be raised altogether 4 inches. The preparations for this are nearly completed, the workmen, as usual, being engaged night and day. The rails for the trains through the tube are laid on longitudinal timbers, like those on the Great Western Railway.

Mining Correspondence.

BRITISH MINES.

ALFRED CONSOLS.—The lode in Field's engine-shaft, sinking under the 60 fm. level is, for the whole length of the shaft, about 5 feet wide, containing a regular course of copper ore 2 ft. wide, worth from 30*l.* to 40*l.* per fm.; ground much improved for sinking, which is a very promising feature for the mine. The 60 fm. level, east of engine-shaft, is for the present suspended; all the men that did belong to this level are put to rise against the winze sinking under the 50 fm.; the lode in this rise is 3 ft. wide; 2½ ft. of the south part is good for copper ore, worth 20*l.* per fm. The lode in the 60 fm. level, west of said shaft, is 2½ ft. wide, thickly dredged with copper ore, worth 4*l.* per fm.

BARRISTOWN.—The lode in the 30 fm. level end, west of Slob shaft, is at present not producing so much ore as last reported; in the 30 end east the lode is producing about 6 cwts. of lead per fathom; the rise in the back of this level is holed to the 26 fm. level, which leaves between 5 and 6 fms. of back; we have set the ground to the east and west of this rise on tribute, to eight men, at 7*l.* per ton. In the stopes in bottom of adit level, at Nangle's, the lode is large and poor; the cross-cut south of Nangle's shaft has been driven about 10 fms.; the end is very wet. Since writing the above a man has come up from the cross-cut, south of Nangle's shaft, with good stones of ore from the lode this day (Jan. 26) cut.

BIRCH TOR AND VITIFER.—Old Vitifer lode: I am happy to say that we have, in the 20 fm. level, west of Dunstan's shaft, a very promising lode; but, in consequence of the weather, we have driven only 3 ft. 6 in. on this end for the last five weeks—the price given for driving this end is 5*l.* per fm. In the 20 fm. level, east of this shaft, we have just cut the run of tin ground that we had in the level above; and, judging from the present appearance of the ground, we may fairly expect a good lode in this end—the price for driving is 3*l.* 10*s.* per fm. The 10 fm. level, east of this shaft, is being driven on the cross-course, and the price is 3*l.* 10*s.* per fm. The price for driving the 10 fm. level, west of this shaft, is 3*l.* per fm.; the lode in this end is very good, as it has been for the last 40 fathoms, and all we want is to be able to work.—North lodes: The price for driving this cross-cut is 4*l.* per fm.—Old engine-shaft lode: We are getting on very well with the plat in this shaft; and the clearing of the adit level, west of this shaft, is progressing very well.

CALLINGTON.—The 125 fm. level cross-cut is driven about 11 fms. west from engine-shaft, ground still hard for driving; but we expect, as we get nearer the lode, to have an improvement in the ground. The lode in the 112 fm. level north is about 6 in. wide, producing good work for silver-lead ore. The 112 fm. level south will produce about 4 cwts. of silver-lead ore per fm. In the 90 fm. level, south of count-house shaft, we are opening tribute ground. The diagonal shaft is now down 9 ft. below the 90 fm. level, ground favourable for sinking. In the 70 fm. level east, on Kelly Bray lode, the lode is 1½ ft. wide, producing good stones of copper ore. In the 112 fm. level north, at the south mine, the lode is rather small and poor, but we expect it will improve in size and value as we get off from the cross-course. We sampled this day, computed 42 tons of rich silver-lead ore, samples of which are forwarded to the different smelters.

CAMBORNE CONSOLS.—In reporting progress to day, it gives me much pleasure to confirm all my recent reports on the prospects of the silver lode, on which our 20 fm. level end is improving, and producing fine silver ore; whilst a vein, from 3 to 6 in. big, which has fallen in with it about 8 fathoms behind the present end, and is carrying itself about 20° south of east, is affording rich work, varying from 300 to 1200 ozs. of silver to the ton of crude ore. This vein varies in its dip, as well as its direction, from the other lode—being nearly perpendicular; and there is reason to hope that we shall, ere long, meet with it in the 40 fathom level. There is very fine work in the back of the 20 fm. level; and I have every reliance that the silver lode alone will put a stop to any necessity for a further call upon the proprietary, notwithstanding we labour at present under some difficulty as to the ventilation of the 20 fm. level, and cannot, therefore, employ as many hands in it as we might otherwise. This we shall endeavour to obviate shortly, or as soon as our returns can be made available. The 40 fm. level, on the silver lode, is also looking promising, and the ground is eased. While upon the subject of the silver, I may as well, perhaps, notice a letter or two of Mr. Ennor's, published in the *Mining Journal*, relative to the mode which we have adopted in preparing ores for the market. That gentleman seems to be labouring under a most mistaken notion, regarding the nature and quality of our ores, which he imagines could not be lessened by the sublimation of foreign matters beyond 1-20th part, whereas we find by actual experiment that they can be beneficially reduced fully 25 per cent., and that the sublimed arsenic alone, had we a calcining-house of our own, would more than cover the cost of the process; for, whilst it is easy of sublimation, it contains that mineral in large quantities. We have found by analysis as much as 66 per cent. though only 14 per cent. of sulphur; and, upon the whole, we have little of the latter mineral in combination with our silver. Occasionally, we find cobalt. All three are readily sublimed, and these are the semi-metals with which our silver is for the most part alloyed. But the question has been asked by Mr. Ennor—"Is Mr. Daniell sure that he does not by calcination lose some of his light silver ore;" and he adds, that "he has reason for believing that he does." However, our testing operations prove the contrary; and, by careful experiments, I demonstrated the fact, before I ventured upon the use of the burning-house, and found on one occasion, besides others, that an inferior sample of ore, in its crude state producing only 56 ozs. of silver to the ton, upon one-half hour's calcination, only in a crucible, its value increased to 84 ozs. to the ton; it would have improved still more by what is technically called a dead calcination, which I have had recourse to on the large scale. Now, it is very clear, that upon all the foreign matters which may be sublimed, we shall save freight, carriage, and returning charges. Mr. Ennor and others, conversant with the subject, must be fully aware, that silver is found in such a variety of combinations, apart from the presence of lead, that there is nothing extraordinary in the foreign matter being expelled by sublimation to the extent of a sixth, or even a quarter part of the parcel, as is the case in Camborne Consols. I have the assurance of Messrs. Robert Michell and Son, of Truro, silver and lead smelters of the first standing and character, whom I have consulted, that a much higher price would be given for the ore after calcination than in its crude state, and, indeed, they would decline to make an offer for it in any other state; but, independently of such a consideration, I am convinced that smelters in general would prefer to purchase the ores deprived of arsenic, though this observation may not apply in all cases. I think, however, I have shown sufficient to convince every unprejudiced mind that the course I have taken is the proper and economical one, and which I shall have the pleasure of showing you, by the results, and by a comparison of quantities and qualities. I do not make those operations upon vague and uncertain theory, but from facts which I have ascertained from practical experiments upon the article itself, which are worth a thousand theoretical speculations. I purpose offering 4 tons directly for sale, two of which, I presume, will be of fine quality; the other two of an inferior description. I intended 1½ ton to be sold in its crude state; but now that I am better informed upon the subject, I shall sample it on Thursday, with a view to its calcination. Also the three parcels already calcined, which, in their crude state, were 3 tons 7 cwts., could not be sampled till to-morrow, as we have been compelled to floor a place for the purpose. The scarcity of covered conveniences, and the late tempestuous state of the weather, has greatly retarded our progress; and, therefore, whilst we are taking the necessary measures in reference to those, the other parcel will also be made ready.—We have discovered a branch of copper ore intersecting the cross-course upon which we have been driving north from Tyndale's shaft, and which, I believe, to be Tyndale's lode. It will take us two or three days to turn home upon it, and some days to get clean off the cross-course; before this is accomplished, we cannot say much about it. From the diallings, which we have just been laying down upon the caunter lode, I have great reason for believing that the principal part of the lode may be standing to the north of us one or two fathoms; and, therefore, at the survey on Saturday, we purpose letting a couple of fathoms to drive north. With such ground as is now making its appearance in the 20 fm. level, on the silver, we shall proceed rapidly to intersect some of the copper lodes at that level which is one of our important objects. I am glad to hear that the directors have consented to establish monthly or bi-monthly meetings of the shareholders upon the mines, which I am sure will give more confidence to the Cornish shareholders than any other steps you could take; besides which, it will enable me to get my accounts examined and vouched by them, which will relieve me of what I consider a great responsibility.

CARTHEW CONSOLS.—At the upper mine we have taken down no lode in the end, at the 65 fm. level south, this week; the ground is very good. In clearing the 55 fm. level north we find good work—in fact, the greater part of the stuff we hand from this level in clearing is saved for work, which will yield considerable copper ore. The 28 fm. level south presents no particular change; the tribute is much as last week throughout. At the lower mine the lode is not quite so large as for some time past, the ground being rather harder about it.

COURT GRANGE.—I went over to Pen-y-cefn yesterday, fearing that the flood might have done us some injury; but with the exception of 3 ft. of the bottom of the 30, covered with water, partly the effect of the late frost and partly of the flood, we have suffered no damage. We have been getting on with stoping the ore between the 15 and 30 throughout the season of frost, but have not been able to draw it to the surface, which, however, we shall begin to do on Saturday next. The ore ground continues much the same in the stopes as from the commencement, but I am anxious about getting down the engine-shaft for another level of ore ground of 12 fms. deep. We are building the ground-work for drawing-machine, and have erected the water-wheel at East Pen-y-cefn. At Llettynhen we have began to work again; there is ore in the western end, but it is not so good as it has been; but all lodes are subject to these changes. The stope is in very good ore, and the dressing-floor preparing, and some ore already dressing.

EAST CROWNDALE.—Set the 28 fm. level, east of middle shaft, to drive by six men, at 45*s.* per fm.; lode worth 6*l.* per fm. Set the 28, west of the middle shaft, to drive by six men, at 50*s.* per fm.; lode 1 ft. wide, good work. Set the middle shaft to sink by six men, price 6*l.* 10*s.* per fm. Set a pitch in the back of the 17 fm. level, west of the middle shaft, to three men, at 5*s.* in the *l.* We shall sample Nov. and Dec. ores on Monday next. The pitches set the 29th December are looking well. On the whole, the men are getting wages.

EAST WHEAL GEORGE.—Since my last report we have driven the adit level east 4 fms. 4 ft.; the lode in the bottom is looking well, and producing good stones of ore, but the lode is not more than 10 in. high in the bottom of the adit, but carrying its regular walls, the end being in unsettled ground. There will be but a slight rise for the next 40 fms. in driving, and the question arises whether the end should be driven further—sufficient evidence being given of the regularity of the lode, and which we find to produce good work in the bottom, and having a capital lode in sinking the winze. I am loath to spend money at so shallow a depth, being convinced of the profitable returns to be derived from putting up machinery and going to depth, which we cannot do without your directions. We have a pretty pile at surface.

ESGAIR LLEE.—Our pay and setting was on Saturday last (26th Jan.), and the following is an account of the latter:—The deep adit, east of the cross-cut, on the north lode, by 6 men, 6 fms. stent, or the month at 4*l.* per fm.; the lode 2 ft. wide, composed principally of slate and friable quartz, but poor at present. The winze to sink below the 12 fm. level, by 6 men, 3 fms. stent, or the month, at 6*l.* 10*s.* per fathom; the lode is looking more kindly, with good stones of ore, but not sufficient to set a value on, and the ground is more favourable for sinking. The 12 fm. level, east from the surface, on the caunter lode, by 6 men, 6 fms. stent, or the month, at 3*l.* per fm.; lode, 2 ft. wide, looking very promising, and will yield, on an average, from 4 to 6 cwts. of ore per fm. The deep adit east from the base of the hill, on the caunter lode, by 6 men, 6 fms. stent, or the month, at 3*l.* per fm.; the lode, since my last report, has been heaved by a cross-course, and as yet we have not cut it to the east of the same; the lode to the west of the cross-course is 6 ft. wide, looking kindly, and will yield about 2 cwts. of ore per fathom. The stopes over the shallow adit, on the caunter lode, west of Morgan's winze, by 6 men, 8 fms. stent, or the month at 2*l.* per fm. The lode will yield, on an average, from 6 cwts. to 10 cwts. per fm.; and, in accordance with your request, I will have 20 tons of ore made ready for sampling as soon as possible.

HOLMBUSH.—The lode in the 120 fm. level south is 5 ft. wide, composed of quartz (but not so hard as it was) and stones of lead—altogether more kindly than it was last week; we shall resume the stoping in the back of the level next week. I am glad to inform you that the ground in the 120 cross-cut south, towards the flap-jack lode, is still very favourable indeed; about 10 fms. will be explored this month towards that object, which is very satisfactory. The lode in the 110 fm. level south is 2½ ft. wide, composed of soft spar, prian, and stones of lead. We have not taken down the flap-jack lode in the 10) fm. level, east of the great cross-course, since last reported on, but driving by the side of it, the wall of which is compact and regular. We sampled a parcel of copper ores, at Calstock Quay, on Friday last, computed 56 tons.

KIRKCUDBRIGHTSHIRE.—In the 62, west of Stewart's shaft, the men have been rising against the winze, which they holed last night; this will ventilate the bottom level for a long way west; we have fixed the incline down to the 62, at Keith's, and the men have begun to drive east and west—the lode is large, but unproductive in both ends. The lode in the 50 west is 4 ft. wide—a white soft spar, with jack and spots of ore through it, and letting down a large quantity of water. The lode in the 40 end is much like the 50, only more jack with it, and fine stones of ore. Having had a fine thaw, we have resumed washing our ores again.

LEWIS.—The cross-cut in the 80 fathom level is rather hard; I find by the cross-cut in the above level that we have about 7 fms. farther to drive to cut the south branch, which I expect will take seven or eight weeks. The north lode in the 70, east of tin shaft, is 2½ ft. wide, worth 15*l.* per fm.; the south branch in the 70, east of copper ore shaft, is 1 ft. wide, worth 2*l.* 10*s.* per fm.; ditto west end, 5*l.* per fathom. The south branch in the 70, east of engine-shaft, is unproductive; in the back of this level there are four pitches, from 5*s.* to 10*s.* tribute. The north lode in the 60, east of tin shaft, is 2 ft. wide, unproductive; the south branch in the 60, east of sump-shaft, is small and unproductive; Cock's branch in the 60, east of engine-shaft, is 6 in. wide, worth 5*l.* per fm.; from appearances, this level has been poor for several fathoms driving, but is greatly improved in the last few days; there are 11 pitches in the back of this level, from 5*s.* to 11*s.* tribute; the 60 cross-cut south, to cut the new lode, is in about 12 fms., and, from appearances, is nearing the lode. The south branch in the 50, east of sump-shaft, is 3 in. wide, worth 3*l.* per fm.; Cock's branch in the 50, east of copper ore shaft, is 10 in. wide, worth 4*l.* per fm.; there are four pitches in the back of his level, average tribute, 9*s.* Cock's branch in the 40, west of copper ore shaft, is 4 in. wide, tribute ground; in the same level east the branch is 4 in. wide, worth 2*l.* per fm.: there are four pitches in the back of this level, average 10*s.* tribute.

SOUTH WALES MINES.—Our pay and setting was on Saturday last, the 26th Jan., and the following is an account of the latter:—The deep adit, east of the Rhydnet river, on the south or Frongoch lode, by six men, 8 fms. stent, or the month, at 3*l.* per fm.; the lode is 9 ft. wide, composed principally of soft slate and spar, with spots of ore; this level is now extended 46 fathoms east from the base of the hill on the course of the lode, and has, on the whole, a very promising appearance. The winze is now 9 fms. below the deep adit, and in consequence of the water being so very quick we have suspended it for the present; from what has been seen of the lode in the winze, a portion only of which has been carried in sinking, although such portion has been fully equal to the whole width of the said winze, it is of a promising character, and showing very strong indications of productiveness in depth: this winze was sunk to ascertain properties going down as well as the underlay, so as to enable us to form a more correct opinion where to sink the engine-shaft; the lode underlays 3 ft. in 6 ft. The copper and lead we drove through in the adit appears to be dipping west, to prove which it will be necessary to sink the engine-shaft; this will be a matter for your consideration, whether you may approve of sinking the shaft previous to a further improvement taking place in the lode in the deep adit east. I have put four of the winzemen to open the old workings on the back of the lode, about 200 fms. east of the present workings. I am informed there was a good branch of lead in the lode when suspended by the former party, the truth of which may be ascertained by four men in the course of two or three weeks.

TAMAR (SILVER LEAD).—The engine-shaft is down 3 fms. 4 ft. below the 190 fm. level. In the 190 end driving south the lode is 2½ ft. wide, composed of spar, capel, and ore, work of a moderate quality. In the 175 end the lode is 1 ft. wide, producing good stones of ore. The 160 end is in disordered ground, and unproductive. In the 145 end the lode is 4 ft. wide, 1 ft. of which is producing work of a promising appearance. In the winze sinking in the bottom of this level the lode is 2 ft. wide, yielding good saving work. At North Tamar the engine-shaft is sunk 4 fms. 2 ft. below the 80 fm. level; the ground is very hard for sinking, being intermixed with small branches of spar. In the 80 fm. level the lode is 18 in. wide, producing work of a moderate quality. In the winze sinking to ventilate this end the lode is of just the same size and appearance as in the level below. In the 70 end, driving north, the lode is 3 ft. wide, interspersed with ore, good saving work. We expect to sample, on Saturday, the 2d Feb., about 85 tons of rich silver-lead ores.

TINCROFT.—On Highburrow tin lode, in the 152 fm. level, east of engine-shaft, the lode is 6 ft. wide, worth 35*l.* per fm. In the 142 fm. level, east of Martin's east shaft, the lode is 4½ ft. wide, worth 18*l.* per fathom. In the 132 fm. level, east of Martin's east shaft, the lode is 4 ft. wide, worth 17*l.* per fm. In the 120 fm. level, west of engine-shaft, the lode is worth 12*l.* per fm. At North Tincroft, in the engine-shaft sinking below the 100 fm. level, the lode is 6 ft. wide, worth 22*l.* per fm. for copper. In the 100 fm. level east the lode is 3 ft. wide, worth 10*l.* per fm.; in the west end, same level, the lode is 4 ft. wide, worth 15*l.* per fm. for copper. In the 90 fm. level, east of Willoughby's shaft, the lode is 4 ft. wide, worth 15*l.* per fm. for tin and copper; in the 90 fm. level, west of engine-shaft, the lode is 4 ft. wide, worth 25*l.* per fm. for copper; in the winze sinking below this level the lode is 5 ft. wide, worth 20*l.* per fm. for copper, in the 90 fm. level, east of engine-shaft, on the north lode, the lode is 3 ft. wide, worth 4*l.* per fm. for copper. In the 80 fm. level west the lode is 4 ft. wide, worth 5*l.* per fm. for copper. On Chapple's lode, in the 100 fm. level, east of Downright shaft, the lode is 3 ft. wide, worth 6*l.* per fm. for tin and copper; in the west end, same level, the lode is 6 ft. wide, worth 16*l.* per fm. for tin and copper. In the 80 fm. level west the lode is 4 ft. wide, worth 9*l.* per fm. for tin and copper. In the winze sinking below the 70 fm. level the lode is 5 ft. wide, worth 12*l.* per fm. for copper. At Palmer's shaft, sinking below the 90 fm. level, on East Pool lode, the lode is 3 ft. wide, with spots of ore. In the 90 fm. level west the lode is 4 ft. wide, worth 6*l.* per fm for tin and copper. In the 80 fm. level west the lode is 3 ft. wide, worth 8*l.* per fm. for copper. In the 70 fm. level west the lode is 2 ft. wide, worth 5*l.* per fm. for copper. In the 24 fm. level, west of Stainsby's shaft, the lode is 1 ft. wide, with spots of ore; in the winze sinking below this level, the lode is 2 ft. wide, worth 20*l.* per fm. for copper.

TRELEIGH CONSOLS.—The 100 fm. level, west of Garden's lode, is 4 ft wide, not much ore. In the 90, west of ditto, the lode is 2 feet wide, with stones of ore, and is looking more kindly. In the 80, west of cross-cut, on the north part, the lode is 18 in. wide, worth 4*l.* per fm.; in the 80, west of ditto, on the south part, the lode is 20 in. wide, with stones of ore. In the 70, west of Garden's, the lode is 2 feet wide, worth 6*l.* per fm. At Wheal Parent, the engine-shaft, below the 40, is sinking in the country. The 40 cross-cut, south of ditto, is driving towards the middle lode. In the 40, east of ditto, the lode is 18 in. wide, with stones of ore. In the 30, east of ditto, the lode is 18 in. wide, with good stones of ore, and is looking kindly.

TRELAWNY.—In the 28 end, north of Phillips's shaft, the lode is 3 ft. wide, worth 12*l.* per fm.; in the same level, south of ditto, the lode is 3 ft. wide, worth 3*l.* per fm. In the 72, north of ditto, the lode is 2 ft. wide, worth 9*l.* per fm. In the 62, north of ditto, the lode is 4 ft. wide, worth 16*l.* per fm. Trelawny's shaft is down 3 fms. 1 ft. below the 82 fm. level—favourable killas ground. In the cross-cut in the 82 we have not yet cut through the capels of the lode, but we have bored a hole into the lode, and we find it to be very productive. In the 72, north of Trelawny's, the lode is 4 ft. wide, worth 9*l.* per fm.; in the same level, south of ditto, the lode is 3 ft. wide, worth 9*l.* per fm. We have suspended the 52, north of ditto, in consequence of being so near the boundary. At the north mine, in the 55, north of Trehane, the lode is letting go a good deal of water, but not much improved in quality. In the 40, north of Smith's, the lode is about 2 ft. wide, getting more settled, and of a promising character, worth 7*l.* per fm. The winze under the 30, north of ditto, is sunk 3½ fms.; the lode is 2 feet wide, worth 9*l.* per fm. The stopes are looking very fair. We sampled on Thursday last, a parcel of best ore, computed 96 tons, and a parcel of common ore, computed 42 tons.

WELLINGTON.—The engine-shaft is sunk 5 ft. under the 42 fm. level; in sinking we shall find it rather troublesome, until the shaft is deep enough to fix a lift in this level, and for which purpose it must be sunk 6 ft. deeper; it is the water that makes this shaft bad for sinking—at present it being nearly all in the bottom of the mine. The lode in the 42 fm. level, east of the engine-shaft, is from 1 ft. to 18 in. wide, producing occasional stones of good copper ore; this level is 6 fms. behind the ore ground in the 32 fm. level. The lode in the winze sinking under the 32 fm. level, 9 fms. east of the 42 fm. level, is 3 ft. wide, and the ore course, on the north part, is about 15 in. wide, worth 25*l.* per fm.; the lode in the 32 fm. level, east of Parcelly shaft, is 18 in. wide, worth for copper and tin 20*l.* per fm. The lode in the 22 fm. level, east of the tin shaft, is 2½ ft. wide, poor; there is no change on the north lode since the last report. I am glad to inform you, that the rise over the adit west is communicated to the pump-shaft; this gives ventilation to push the adit into the western ground.

WEST POLGOOTH.—The engine-shaft is down 7 fathoms; the roads are made good. About 100 loads of stone are ready on the mine for the engine-houses, and the other works going on satisfactorily.

WEST WHEAL JEWEL.—The 85 fathom level, west of Williams's cross-course, on Wheal Jewel lode, is producing stones of ore. In the 70 fm. level, west of Williams's cross-course, on the same lode, lode not taken down in the past week. The 57 fathom level, west of ditto cross-course, on the same lode, is worth 6*l.* per fm. The 47 fm. level, east of ditto cross-course, on the same lode, is unproductive. We have not taken down the lode in either of the levels on Tolcarne tin lode in the past week. The stopes in the back of the 12 fm. level, east of Pryor's winze, on the same lode, are worth 17*l.* per fm.; the stopes, west of ditto, are worth 18*l.* per fm.; in the stopes in the bottom of the 12 fm. level, east of Tregoning's shaft, the lode is worth 24*l.* per fm.; in the stopes in the bottom of the same level, west of Tregoning's winze, the lode is worth 26*l.* per fm. These stopes are working on tribute.

WHEAL MAY (SILVER AND COPPER).—The engine-shaft has been set to nine men at 5*l.* per fathom, and the eastern adit at 5*l.* per fm.—they were but a few feet from cutting the silver lode. The ore being raised at the bottom of the shaft was of a splendid quality, and held out great promises of making speedy profits; they had set on several more men dressing ores, and a good sample would be ready the first week in March.

WHEAL PENHALE.—The lode in the north end, in the 30 fm. level, is from 6 to 8 ft. wide, and considerably improved since Saturday last in produce of both lead and copper. We have taken down the lode in the south end, at this level, which is about 4 ft. wide, and is very good, especially in lead; this is now a very good, and no doubt exists of its continuance as a productive level; the north end, in the 20 fm. level, presents appearances much as last reported. In the 10 fm. level south the lode has this week been crossed by a slide, but on opening on it, south of this slide, it is found larger than before, still inclining west, and producing some good work in copper. No particular change in the tribute pitches.

WHEAL RUSSELL.—The winze sinking under the 10 fm. level, on the south lode, has, for the last three or four weeks, been looking very well, and has varied in width from 2 to 3 ft., and produced from 1 to 1½ ton of ore, of good quality, per fm. We have just begun to drive east and west from the bottom of this winze, and the lode in both ends looks well. A pitch in the back of the 16 fm. level, by two men, is also looking well. It is expected that the men will raise 10 or 12 tons of good ore this take (two months). On the north or main lode, the shaft under the 15 fm. level is going down fast, and by the end of another month will be down deep enough for another level—say 14 or 15 fms.; the lode in this shaft is from 4 to 5 ft. big, very kindly, and producing good stones of ore. A pitch in the back of the 15 fm. level east, on tin, by four men, is turning out very well; the men will have a good take at 5*s.* in *l.* The 15 fm. level east is a large and kindly lode, producing good stones of tin and copper ores; and we entertain strong hopes that our next level will be a valuable one.

WHEAL VINCENT.—We have again taken down the south lode, at Nos. 2 and 3 shafts, as well as the lode in the bottom level driving west, which is nearly 3 ft. wide—all of which continue to produce good work. We have now sufficient tin ground open to keep the new stamps continually at work; and in the course of a week or 10 days we shall be in a position to break sufficient to keep the other stamps at work also. The water is in fork to the bottom of the engine-shaft, on the north lode; we have just cut into the north part of it. I hope, by to-morrow, we shall be able to get some of it to the surface. We have stamped some of the south part of this lode to-day, and found it to produce good work for tin, but we think the north part is much richer.

GIDLEY MINES.—The adit driving west of this mine has got into a hard bar of ground. The costeaning has been successful: lodes have been discovered, one of which is exceedingly promising.

FOREIGN MINES.

BAROSSA RANGE MINES.—Extracts from Capt. Rodda's letters:—

Aug. 4.—You ask if we can drive an adit or not, or if the Gawler might be useful for working a wheel at Lyndoch Valley, &c. Now, with regard to an adit, this might be done in Mr. Angas's land, starting with it from Evas shaft from which the water is drained, in which also the lode is cut, holding a great deal of copper stairs for 12 ft. wide, in a lode 40 ft. wide. An adit here could be continued on the lode in gentle rising ground for 300 fms., in which distance it would deepen from 9 to 70 fms., but at this depth or place it would be nearly out of our sett in case it retained its underlay eastward as it now does. We started this adit many months since, got it in about 4 fms. from Evas shaft, and should have continued to drive it, would our funds permit. My reason for driving it would not only be to cut copper, but to find out the general nature of the lode—to ascertain the size of the bunches of ore, also the dip and inclination of those bunches: these things are important (and as an old tributer) I should be very anxious (whenever there is an opportunity of driving an adit on the course of the lode, subject to bunches of ore) to find out the inclination of such bunches, in order properly to calculate on where to find them at the next or deeper levels.

With regard to the Gawler River (if it may be called such), it is dry for six or eight months in twelve, and I know of no river here that is calculated to drive machinery—besides, it is 4 miles from us at Lyndoch Valley. There is no doubt of the steam-engine referred to being of great service to us by-and-bye, on which I dwelt in my last; but were you, or any other shareholder, on the spot to see how easy it is for us to see the lode at the 22 fm. level, you would be inclined to say, "here is money for that purpose;" for we have a nice new whim erected, new rope and kibbies, Mary's shaft sunk and secure to the 12 fm. level, with 12 ft. under that for a fork to hold water; a roomy cross-cut driven from Mary's to Simon's shaft, in which we have a good footway; we have now good ventilation, and shall feel the benefit of it for 10 or 20 fms. deeper, and add to these things an unusual large lode at the 12 fm. level, 6 ft. of which has in it fine work—one stone was 200 lbs. solid, 40 per cent. I will not overrate things, but merely give you legitimate encouragement; and whether you send more money quickly or not, I shall do my utmost to see the lode at the next level. Our Bremer Mine has a very singular appearance when compared with our mines at home. The strata here is, upon the whole, uniform, being a singular mixture of micacious and clay slate, hard at the surface, but softer below, and close to the lodes (especially when they make copper); it is interspersed with soft limestone, of a greasy or fat nature.

The lodes are mainly composed of quartz, capel (or hard killas), oxide of iron, and the red oxide of copper, with the blue and green carbonates of copper, but very frequently iron predominates; we now regard this as a good omen of copper, for in every instance where the iron cuts out the copper, the copper is to be met with again in a few feet sinking or driving. The lodes here do not vary much in width, they are about 3 ft. wide, and very numerous, underlaying east about 2 feet in 6. I have no doubt but we may find from 30 to 40 lodes in the sett, and I have so marked out the sett as to take them lengthways: they appear nearly all of them to have a left-hand heave, in consequence of cross branches; these cross branches are not visible to the surface, but present merely a bead or division in the rock, and running nearly right angles with the lodes, shifts or leaves the lode about 20 fms. to the left hand; but, although these branches appear so trivial at the surface, yet about 2, 3, or 4 fms. below, they are frequently 3 or 5 ft. wide, and make ore in connection with the lodes—one of which we expect to cut in a few days at 7 fms. deep. They do not all take the lodes at the same angle, and the further from a right angle the more they affect the lode; our principal one is of this description, and may very properly be called a caunter, on which a great many tons of ore have been risen, and on which we have been working.

IMPERIAL BRAZILIAN MINES.—The following gold report was received, per *Linnet* packet, on 26th January:—

Gongo—From 13th to 20th November			*Lbs.*	3	10	2	0			
From 23d to 30th	ditto			7	5	14	0—*Lbs.*	11	3	16	0
Bananal—From 13th to 22d	ditto			2	2	4	0			
From 23d to 30th	ditto			5	10	10	0—	8	0	14	0
Together							—*Lbs.*	19	4	10	0
Total raised from 1st July—Gongo			*Lbs.*	60	1	13	0			
" Bananal				39	7	5	0—*Lbs.*	99	8	18	0

LINARES MINES.—The following has been received from Mr. H. Thomas:

Linares, Jan. 19.—Some of our tributers have drawn and are now dressing their ore, which is of good quality, and as the box of minerals sent from hence seems to be unheard of, another will be prepared, in which I shall be able to point out the distinctive qualities as they are usually prepared here for sale. Our new tributers are, on the whole, working in good ground, and will produce the estimated quantity of ore—next month we hope to have two or three pitches more at work. The whim is employed in clearing the chokes in the western level, which will, in addition to what remains unwrought east of the engine-shaft, give us the opportunity of increasing our hands on lead. Since I last wrote you we have dialled the level east to the forebreast, and I am glad to report that the shaft, which is sunk in the country about 60 fms. from the engine-shaft, and which at its present depth, 17 fms., is 10 ft. from the lode, will, at the next level, if continued, have fallen in with it. This is owing to a difference in the underlay, and is very fortunate for us, as it will come down close to the present end of the 30 fm. level, and be excellently situated for commanding the eastern workings. I mentioned also that the shaft of San Juan will be applicable for the western part of the mine, and will command also the pertinencia of San Judas, so that as we now see it, we shall be much better off when these shafts are down for facilities of drawing than our first examination had led us to expect. In the eastern part of the 30 fm. level the two lodes seem to be together. I am not able to report further progress with respect to sinking the galera of iron, not having yet arrived, probably owing to the late heavy rains, but it cannot now be much longer delayed. We shall now be looking out for customers for our lead ore.

NATIONAL BRAZILIAN MINES.—*Cocaes, Dec.* 2.—We informed you in our last report, of the promising feature our mine then presented, since when the daily returns have been rapidly improving, and we have now most likely met with one of the Cavaco main veins, but we hope not the best of them. The vein now at Hartley's stope, however, exceeds everything hitherto seen by us at Cocaes. Up to the 28th of last month portions of the vein were selected and brought out of the mine in the usual way as samples, but finding this rather a tedious method, we were obliged to have recourse to boxes for that purpose, which are daily required—two boxes a day being about the quantity obtained until yesterday, when a third was brought out in the evening. We have no means at present of ascertaining the exact direction of this vein, but it appears to be nearly parallel to the lines just alluded to, and also to that of Hamilton's stopes; if so, it has never been touched since the Brazilians left it at the bottom of the Cavaco great excavation, and up to this time we may have been deluded by the (perhaps not intentional) false information given by the former miners, who always pointed out the richest places to have been much farther west and south than where we are now working. In driving northerly from the tramroad, near Collett's stope, there is another rich vein, from which beautiful samples are daily taken. Some days ago we had supposed this vein to have been the same as that in Hartley's stope below, but judging from the appearance of the ground, and the distance driven (but which has not been measured), it cannot be so far north; it, however, passes to the north of the Cavaco shaft, and may be found entire to very nearly the surface. This line will in future be called "Hamilton's lower stope." At Hamilton's stope there has not been much done since the last report, the people having been required at the two places before mentioned, but this being a point at which we are expecting some large deposits of gold in the soft jacotinga, it must not be allowed to remain idle for any long period, and as soon as a few hands can be spared they will resume their stations there as usual.—N.B. The produce for the two last days exceeded 5 lbs. per day.—Cocaes produce, from 24th of Nov. to 3d of Dec, eight days, 42 mks. 4 oz. 7 oits. 36 quin.

Dec. 4.—Some stones I had bruised up yesterday, brought out in a hat-cap, produced 12 ozs. of gold, and the vein had never looked so well—in fact, some of the stones were half gold.

ST. JOHN DEL REY MINES.—Extract of letters received from Morro Velho, dated 18th and 28th November:—

Gold extracted to 18th, 6462 oits., from 377·14 cubic feet of sand (result of nine days' stamping), yielding 17·13 oits. per cubic foot; stamps working 17 days, average 94 7-10 heads. The supply of stone, though still sufficient for the requirements of the stamps, is not quite so abundant as it had been during the two preceding months; and I am sorry to add, that the quality of the stone sent up from the mine since the end of October has considerably deteriorated, in consequence of the great prevalence of killas amongst it.—Gold remittance started yesterday morning for Rio de Janeiro, in charge of Capt. William Treloar; it consisted (as per my letter of advice, dated 16th inst.) of eight boxes, containing 45,573 oits.=437·32 lbs. troy of amalgamated gold, being the next produce after payment of 5 per cent. duty of the months of Sept. and Oct.—Gold extracted to 18th Nov., 13,971 oits., from 837 2-10 cubic feet of sand (result of 20 days' stamping), 16·69 oits. per cubic foot. As far as can be seen at present, this month's produce promises, I am sorry to say, very badly; but I need not remind the board, that in mining they can never reduce results to a rule-of-three calculation; that from time to time they must be prepared for sudden and often unaccountable differences between the results of one month and another; and that it is only the average of several that can be safely taken as a guide.—Stamps working 27 days, average 94·56 heads. The supply of stone has been sufficient for the wants of the stamps, but has not permitted us to reject so freely as the preceding month; added to which, the large quantity of killas sent up from the mine has greatly deteriorated the quality of the stone supplied to the stamps, and so far accounts, in a considerable degree, for the falling off in the produce. I am happy, however, to say, that this, probably, will be rectified in the coming month of Dec., when the larger force henceforth to be employed, and the larger supplies of stone consequently to be furnished by the mine, will enable us to pick more freely on the spalling floor, and thus raise the standard of the stone supplied to the stamps.

GOLD IN RUSSIA.—The value of the productions extracted from the gold mines of the Ural (Russia) for the first half-year in 1849, amounts to 4,000,000 frs. as regards the Government mines, and 10,190,000 frs. on private account: total, 14,490,000 frs.—which furnishes in comparison with the second half-year of 1848, an increase of upwards of 4,500,000 frs., arising almost entirely from private enterprise. A similar and proportionally larger difference appears with reference to the platina mines; the quantity extracted being, for the last 10 months in 1848, 23 kilogrammes, and for the first half-year of 1849, 66 kils., worth about 66,000 frs.—*Brussels Herald.*

BLACK-LEAD FOUND IN AMERICA.—There has recently been discovered in Essex county a valuable mine of plumbago, on the lands of Francis Saltus, Esq., of New York. The most celebrated mine of this description hitherto known, is that at Borrowdale, England, described by Dr. Ure, and as but little has yet been found in this country, heavy importations for many years have been the result.—*New York Journal of Commerce.*

An experimental message balloon, as suggested by Mr. G. Shepherd, C.E., for communicating information with Sir John Franklin in the arctic regions, will be dispatched from London in course of a few days. The messages will be printed on coloured paper, many thousands of which will be circulated, and any person who may pick up any one of the slips is respectfully requested to forward it immediately (per post) to the Secretary, at the Admiralty, London, stating the time and where found.

The Clay Cross Company have contracted to deliver 45,000 tons of coal in London; and have agreed with the Midland, and London and North-Western Railways for the carriage of them, at ½d. per ton per mile.—*Derbyshire Courier.*

UNITED MEXICAN MINING ASSOCIATION.

The usual half-yearly general meeting of proprietors in this association was held at the offices, Finsbury-circus, on Wednesday, the 30th January.

Sir JOHN EASTHOPE, Bart., in the chair.

Mr. MATHER (the secretary) read the notice convening the meeting, the minutes of the last meeting, which were confirmed, and the following

DIRECTORS' REPORT.

The directors have but little to add to the information monthly laid before the proprietors on each arrival of advices; but to note with satisfaction the gradual improvement in the prospects of the company. At the last general meeting the proprietors were informed that Mr. Shoolbred had entered into contracts for two new mines, called Promontorio and Aldana. The first adjoins the Mine of Rayas; the vein of which, it is believed, runs into this new property—the Mine of Promontorio. The workings have been prosecuted with encouraging prospects of success—the produce already having nearly covered the outlay. The other mine, being situated in entirely virgin ground, and the shaft requiring to be sunk to the depth of 140 varas, in order to cut the lode, the directors have watched its progress with some anxiety, on account of the outlay necessary to meet difficulties presented by the water and other obstacles; but their anxiety is much relieved by the announcement contained in the last despatches, that it promises fair to become a valuable acquisition. In sinking the shaft, though still 40 varas off the main lode, a small vein of ore had been met with, yielding 4½ mcs per menton, or 45*l.* per ton. The produce of this thread of ore may in itself be but of little moment, but is most important, as indicating the direction of the main lode, and the richness of the mountain through which it passes.

In addition to the above, the manager has also secured another mine, called Jesus Maria y José, situated on the celebrated vein of La Luz, and half-way between the mines of La Luz and Santa Lucia—the two richest mines now working in Mexico. All the surface works are completed, and the sinking of the shaft proceeding gradually. Surplus labour only being employed upon it, it will be effected at a comparatively small outlay, without relaxing any of the works in the other mines; the terms are very favourable to the company, and great hopes are entertained by the manager and the chief mining officer of this property.

The workings in the Mine of Rayas have been subject to the usual mutations which are incidental to all mining speculations; but, from the results of the past year, and the tenor of the last advises, no doubt need be entertained that the productiveness of this mine is undiminished; and, besides the points already so profitably worked, others are now being prosecuted, giving fair remuneration and holding out future promise. The company's share of the produce on the operations of this mine, from the 1st January to the end of September, amounted to $71,380 5 3, which has reduced the mine debt to $462,593 4 5. The haciendas of the company, now four in number—viz.: Barrera, Dolores, Duran, and Casas Blancas—are kept well employed. The Zacatecas claim upon the Mexican Government, so long outstanding, having been again brought before Lord Palmerston, the directors have reasons to believe that his Lordship's instructions to her Majesty's chargé d'affaires will lead to a settlement thereof. The directors now submit the London accounts, the result of which enables them to recommend that a dividend of 7s. 6d. per share be paid on the 43,174 shares, on and after the 1st February ensuing.

The following is the statement of accounts for the year ended Dec. 31, 1849:

United Mexican Mining Association—from Dec. 31, 1848, to Dec. 31, 1849.

Brought from audited account to December 31, 1848		£29,989	4 4
Interest		129	17 3
Transfer fees and discount on stamps		87	18 6
Remittances from Mexico—viz.: in specie	£11,058 19 2		
" " bills of exchange	2,067 8 3	—13,126	7 5
Total		£43,333	7 6
Amount charged to the management in Mexico for 1000 bottles of quicksilver shipped, and other payments, in respect to which it is to account		£12,165	10 8
London expenses for one year—viz.: directors' fees, salaries and wages, rent and taxes, &c.		1,513	11 3
Auxiliary capital		37	10 0
Red Scrip		366	10 0
First dvidend		189	15 0
Second ditto		163	5 0
Third ditto		613	0 0
Fourth ditto		14,630	15 0
Law charges for 1848 and 1849		42	6 8
Stamps for dividends		32	10 0
Leaving an asset of		13,378	13 11
Total		£43,333	7 6

The assets of the association consist of balance, 13,378*l.* 13s. 11d., to which is to be added remittances received since, $20,000, 1000 doubloons, and bill of exchange for 46*l.*=20,737*l.* 2s. 9d., subject to the unclaimed auxiliary capital and dividends, 5939*l.* 15s.: leaving an available asset of 14,797*l.* 7s. 9d.

In proposing the adoption of the report, the CHAIRMAN said, they had truly stated, therein, that they had little to add to the knowledge obtained by the proprietors from the monthly reports. It was the directors' custom to communicate with the shareholders without reserve; and if, therefore, proprietors would take the trouble to read, they would be as well informed as the directors. They had smoothly surmounted all their difficulties through this absense of exclusiveness, although they had been blamed by their managers in Mexico, who have said they, on some occasions, were too communicative, and that the publicity of particular intended proceedings had prevented them being effected; they, however, persevered in the practice, and did not regret it, as it had established a system of perfect confidence between the proprietary and the directors. With regard to the new mines, he would just repeat the observation he had made at the last meeting to impress upon the minds of proprietors that the manager, in undertaking them, had been most distinctly impressed with the understanding that no money could be forwarded from England for such purpose, but that he must rely on his own resources in Mexico. The Promontorio Mine had, up to the present period, cost 1202*l.*; the Aldana, 868*l.*; and at the mine of Jesus Maria y José the expenses had as yet been but trifling. The contract with the owners of Rayas expired in Jan., 1852; but the manager had not been able to open any negociation with them hitherto, from the unreasonableness of their demands; and if the remainder of the debt, amounting to $463,000, was not paid by that period, even if no renewed contract took place, they still kept possession until the whole was liquidated.

The CHAIRMAIN then went into a statement, showing that the dividend of 7s. 6d. would just take up the balance in Land; but as they had 500 bottles of quicksilver in Mexico untouched, by purchasing which, some months since when it was but 3s. per lb., they had cleared 2000*l.*, and $30,000 expected by the packet in February, there was no fear of being pressed for means. With respect to the debt due by the Government, on account of Zacatecas, they had used every endeavour to bring them to a settlement in vain. With all their promises, they settled them after the Spanish fashion by continual postponement; the directors had now endeavoured to impress upon Lord Palmerston the justice, and, at this lengthened period, the urgency of the case; and, no doubt, instruction had been sent to Mr. Doyle, to adopt such strong course as would put the affair in a course of settlement. This debt amounted to $300,000, which, with that of Rayas, made a total of some 160,000*l.*—the receipt of which would put them in a very different position.

The report and accounts were then adopted; a dividend of 7s. 6d. per share was declared, payable yesterday.

Henry Bunster, Esq., was elected a director in the room of J. N. Shoolbred, Esq., who had gone out to Mexico as chief manager; and a vote of thanks having been passed to the chairman and directors, to which the former replied, the meeting separated.

BEDFORD UNITED MINING COMPANY.

The usual two-monthly meeting of shareholders was held at the offices, on Thursday last, the 31st January.

JOHN BROWNE, Esq., in the chair.

The minutes of the last general meeting were read and confirmed.—The cash account of the mines, showing a balance in its favour of 1162*l.* 10s. 11d., an account of payments and receipts before the meeting in April next, representing a balance of 3363*l.* 19s. 4d. in its favour (including the above sum of 1162*l.* 10s. 11d.), and an estimate of general liabilities and assets, proving a balance of prospective assets over liabilities of 4383*l.* 19s. 4d., were laid before the meeting and passed. A statement was produced, showing that the mine had made a clear profit during the last 12 months of 3830*l.* 1s. 11d., and that during the past six months a profit of 2661*l.* 14s. 8d. had been realised, chiefly in consequence of the advance in the standard.—It was resolved that a dividend of 5s. per share be declared, payable on and after Monday, the 4th Feb.; it was further resolved that a special general meeting of shareholders be called for Thursday, the 14th Feb. next, for the purpose of taking into consideration the following proposition, and to pass resolutions thereon—viz.: that all that portion of the Bedford United Mines sett to the south of the Bridge lode, with the right of the use of the waste water, leats, &c., not occupied in the working of the northern portion of this sett, be sold to the lessees of East Gunnis Lake Mine sett for the sum of 500*l.*, with power to the shareholders in this adventure to take a like interest, or share, in any new company that may be formed, as they now hold in the Bedford United Mines. An elaborate and highly perspicuous report on the above subject, drawn up by the manager, James Wolferstan, Esq., was presented, and unanimously approved of by the meeting.—The following report, from the manager, was read to the meeting:—

I beg to hand you the following particulars of the present state of the mines, as a report for the meeting to be held to-morrow. The shaft is now sunk 13 fms. under the bottom of the 103 fm. level; the men will continue to sink until Friday next, when we shall place them to drive south to intersect the lode; the ground has for the last 2 or 3 fms. been easier, and more congenial. The 103 fm. level has been extended eastward of the shaft about 7 fathoms during the past two months, and we expect to open it to Burley's winze next month, which will greatly facilitate all our operations between this and the level above it. In driving west from Burley's winze we have had a large lode, strongly impregnated with mundic, with good black and yellow ore, but we are not certain whether it is the north or south part of the lode; as soon as the level is open to the shaft, we shall be better able to prove it. The driving east of Burley's winze has been principally by the side of the lode, and we have cut into it once; the capels are large and hard, and containing good yellow ore, but it is evident that we have not yet reached the rich shoot of gossan ore. Crew's winze is sunk to within 3 fms. of the 103 fm. level, but is again suspended on account of water; the lode in the bottom of it is worth 32*l.* per fm. Bray's winze is sunk 3 fms. under the bottom of the 90 fm. level; on an average it has yielded 8 tons of good ore per fm. In the 90 and 70 fm. levels we have been driving by the side of the lode, and not taken down any part of it for the past two months. The pitches generally are looking well, and one in the back of the 80 fm. level is greatly improved, so much so, that it is yielding 20 tons of good ore per month, being worked by two men. I am happy to say, the mine continues to be as productive as usual, and affords every prospect of yielding the same returns for a long time.

BLACK CRAIG AND CRAIGTON MINES.

A meeting of the parties interested in the above mines was held at the George and Vulture Tavern, George-yard, Lombard-street, on Friday, the 1st inst.,

HENRY ENGLISH, Esq., in the chair.

The nature of the proceedings having been entered into by the chairman, Mr. LONGMAID, as hon. sec., stated to the meeting that such had been convened for the purpose of determining on the extension of the company, by the issue of 5000 shares, of which the present proprietors were prepared to reserve 3750, the remainder being issued at 5*l.* each. Upwards of 360 tons of ore had been raised, of which 285 tons had been sold, at 2600*l.*, independent of outlay on plant, leaving 1300*l.* profit. Fifty men at the present moment were working on ore ground, and it was calculated that, in the forthcoming twelve months, 2000 tons might be raised, which, at 9*l.* per ton, would yield 18,000*l.*; while the cost of raising would not exceed 3*l.* 10s. per ton, or 7000*l.*, which, adding thereto 3000*l.* for further expenses, would leave 8000*l.* as profit per annum.

Mr. M. MATTHEWS put several questions to the chairman and hon. secretary, as to the proposed measures, and more especially directing attention to the limited proportion of shares proposed to be allotted, which was referred to the parties interested.

Mr. D. L. WILLIAMS, in adverting to the proceedings, observed that no question could arise as to the value of the property, with which he had been formerly connected, expressing his willingness to enter into the concern.

It having been suggested by the CHAIRMAN, that an agent should be employed to inspect and report on the state of the mines, and that the meeting should be adjourned, it was resolved, that the chairman and hon. secretary be requested to communicate with John Taylor, Esq., so as to obtain a perfect report, and that the meeting stand adjourned, seven days' notice being given.

HEIGNSTON DOWN CONSOLS MINING COMPANY.

The usual two-monthly meeting of shareholders was held at the offices of the company, Threadneedle-street, on Thursday, the 31st January.

W. A. THOMAS, Esq., in the chair.

The cash account and bankers' pass-book showing a balance of 145*l.* 19s. 8d. in favour of the mine, as also an estimate of liabilities and assets (the former amounting to 500*l.* 17s. 10d., and the latter to 300*l.*), were laid before the meeting and passed.—The October and November cost-sheets of the mine, the merchants' bills and vouchers, and the December cost-sheets, were exhibited and passed.—Mr. W. A. THOMAS stated to the meeting that the lease of additional ground to the Heignston mining sett had been obtained from the Duchy of Cornwall, and had been signed by the trustees.

The following report, from Capt. J. Hitchens, was read to the meeting:—

Jan. 30.—I beg to hand you the few following particulars relating to the progress and prospects of this concern, which have this day been brought under my most careful inspection. In the first place, I am happy to be able to confirm our late reports of the improvement in the general character of the south lode, in the 20 fm. level, and more particularly of the discovery of a rich leader of ore in the north lode, in the 35 fathom level. Since the last meeting, and for the last 6 or 7 fms., in the 20 fathom level, the south lode has been wearing a very highly encouraging appearance, being, on an average throughout, from 2½ to 3 ft. wide, and composed of the right sort of gossan, with occasional rich stones of grey ore intermixed. This level has been driven with a view to the development of the general character and produce of the lode, for determining as to its deeper trial. For this purpose, on Saturday last, we set a cross-cut to be driven south, in the 35 fm. level, by six men, at 5*l.* per fm., the distance being, according to the present declination of both lodes, somewhere about 20 fathoms. From the encouraging appearances of this south lode, as just referred to, we cannot help expecting, with equal confidence, that it will prove as good a lode as we now have at the same level on the north lode. The said 20 fm. level, on the south lode, having been discontinued, the men have been transferred to the new 35 fm. level cross-cut. In the 45 fm. level, from Baily's engine-shaft, the driving has gone through the lode, which will now be driven on eastward, showing, however, at this point of intersection, no other than for the most part a large capel, as is the case at similar points of intersection in the upper levels. As in that case also we expect the lode will improve as we get further eastward.

In the winze in the bottom of the 35 fm. level, 45 fms. east from said shaft, which has been sunk 5 fms. 4 ft., the lode has been very kindly for most of the way in sinking, composed of very strong gossan, and in places producing good stones of ore, the lode being altogether, on an average, between 2½ to 3 ft. wide. In the 35 fm. level, east of the said winze, the present end being about 13 fms. therefrom, for the last 7 fms. there has been a good lode of rich grey and yellow copper ore in the leading part, on the north wall, and on average about 8 in. wide, and worth certainly 25*l.* per fm. We are getting down the winze below this level with all possible dispatch, for the important advantage of getting a deeper level to come in under the ore ground, and also for the object of communicating the same west with Bailey's engine-shaft, and doubt not, from the regular way in which the ore is holding down in the bottom of the 35 fm. level, that it will not only be found equally good, but also of improved quality in the 45 fm. level. Altogether, I have no hesitation in saying that the prospects of this concern were never anything like so good as at the present time, and, moreover, I am of opinion that as our workings progress eastward, more into the heart of the granite, where the same is expected to be intersected by the cross-courses so frequently before referred to, our lodes will become more productive, and Heignston eventually, and before long, result in a good and lasting mine.

HOLYFORD COPPER MINING ASSOCIATION.

At the general half-yearly meeting of shareholders, held at the offices, Great Winchester-street, on the 30th January.

EDWARD HUNT, Esq., in the chair.

The following report of the directors was read to the meeting:—

The directors beg to submit the usual half-yearly balance-sheet and account of expenses and produce of the mines, made up to the usual periods. On referring to the accounts, it will be seen the loss on working the mines the past six months, has been 563*l.* 12s. 1d., of which amount 260*l.* has been expended at the Old Forge Mine, which has not yet proved productive, but the lode is promising. At Holyford the lode is being proved in depth, and the result so far is satisfactory, as will be seen by the subjoined report of Capt. Lyle; for, although it will yet take some time to open sufficient ground to allow any considerable quantity of ore to be raised, a gradual increase may be expected. The directors and auditors term of office expires at the present meeting, but they are eligible, and offer themselves for re-election accordingly.

The following report, from Capt. J. Lyle, was also read:—

Holyford, Jan. 25.—I herewith hand you my report of these mines for the last six months. We have driven the adit level north 18 fms.; for 12 fms. of which the lode was about 1 ft. wide, of a promising appearance, with stones of ore, and in depth likely to make a good lode. The 10 fm. level north has been driven 7 fms. 3 ft., lode about 6 in. wide, with stones of ore; we have a pitch working in this ground in the back of the level, where the lode is 1 ft. wide, with good stones of ore; the 10 fm. level south we have driven 7 fms. throughout a good lode, the last 2 fms. have been worth 80*l.* per fm.—the end is still very good; we have a stope working in the back about 6 fms. behind the end, which will produce 80*l.* worth of ore per fm. The 20 fm. level north has been driven 18 fms., lode small, and the ground hard; the lode in the end is looking better; it is now 1 ft. wide, with spots of ore, and we expect in 2 or 3 fms. further driving to have a good lode, as we are sinking a winze under the 10 fm. level, in which we have a good lode, and as the ore is dipping north the end is not yet under it; the 20 fm. level south has been driven 21 fms., the lode varying from 6 in. to 1 ft. wide, with good stones of ore the greater part of that distance; we have a pitch working in the back of the level about 4 fms. from the present end, worth at least 40*l.* per fm.—the lode in the end at this time is 1 ft. wide, with good stones of ore. We have driven the 30 fm. level south 6 fms., and north 3 fms., the lode in the south end is now 6 in. wide, with very good stones of ore, and the lode in the north end is 1 ft. wide, solid ore, worth 60*l.* per fm.—5 fms. of the ground which we have driven through will produce in the back about 50*l.* per fm., and in the bottom 70*l.* per fm. The engine-shaft is sunk under the 30 fm. level about 9 ft.; the ground is a good killas, with good branches of ore running through it; from the appearance of the lode in the 30 fm. level, which I am happy to say proved as I anticipated in my last report, I have every reason to think as we get down we shall still have a better lode. The south shaft has been sunk to the 20 fathom level, and the level driven north 8 fms. 3 ft., the lode varying from 6 in. to 1 ft. wide; the lode in the end at this time, in the back, is very small, but in the bottom it is 15 inches wide, very good, but not quite solid. The winze under the 17 fm. level is holed to the 20 fm. level; we have a pitch working in the north end of the winze, the lode is 1 ft. wide, very good—working at about 3s. in 1*l.* The pitches throughout the mine are looking better than they have for the last two months. At Old Forge, the 20 fm. level east has been driven 20 fms. 3 ft., lode varying from 3 to 4 ft. wide; this end is not yet as far east as where we had the greens, and a large lode in the 10 fm. level, which I noticed in my last report. The 10 fm. level east has been driven 17 fms., the lode for the greater part of that distance 4 ft. wide; in the end at this time it is 3 ft. wide, with spots of ore, and a large quantity of greens.

The report of the directors was approved and confirmed, and Edward Hunt, Frederick Le Messurier, and Charles Hunt, Esqs., were re-elected directors; and A. Hunt, and W. Brock, Esqs., elected auditors for the ensuing year.

TREVISKEY AND BARRIER MINING COMPANY.

The usual bi-monthly account was held on the 23d January, when a dividend of 5*l.* per share was declared on Treviskey. The following statement of accounts was presented and passed:—

TREVISKEY.			
To ore sold 27th Sept. (less dues)	£2025	2 0	
Tin sold 19th Sept. (less dues)	27	1 10—2052	3 10
By labour cost for October and November	763	4 8	
Tribute of copper ore and tin	238	0 10	
Merchants' bills, &c.	310	0 5	
Tresavean adventurers' engine cost, &c.	154	16 11—1466	2 10
Showing profit of		£ 586	1 0
Balance in hand end of September		50	14 8
Makes a total of		£636	15 8
Deduct dividend of 5*l.* per share		600	0 0
Leaves now in hand		£ 36	15 8
BARRIER.			
By ores sold 27th September (less dues)		£ 74	11 7
Labour cost for October and November	£2 17 3		
Tribute of ore	11 15 8		
Tresavean adventurers' engine cost	4 17 9	—19	10 8
Showing a profit of		£ 55	0 11
Due to pursers at end of September		112	16 2
Now due to pursers		£57	14 3

Treviskey Report.—The 272 fm. level is driven 3 fms. east, and 3½ fms. west of the shaft; the lode in this level is 20 in. wide, but unproductive. The 260 is driven 30 fms. east of the shaft—here the lode is small and poor. We are driving north, and expect to intersect the north part of the lode in the course of next week. The 248 is driven 63 fms. east of the shaft; the lode in this place is 2 ft. wide, producing 7 tons of ore per fm. The rod winze is sunk 7 fms. below the 248; the lode in this winze is 2 ft. wide, yielding 2 tons of ore per fm. The 236 is driven 52 fms. east of the shaft; the lode here is 18 in. wide, yielding 1 ton of ore per fm.; the lode in the winze sinking below this level is 2 ft. wide, producing 2 tons of ore per fm. The lode in the winze sinking below the 224 fm. level, 36 fms. east of the shaft, is 18 in. wide, producing 1 ton of ore per fm. The two stopes in the bottom of the 236 fm. level are yielding 6 tons of good ore each per fm. The 212 is driven 33 fms. east of the shaft; the 200 is driven 40 fms. east of ditto; the 188 is driven 37 fms. east of ditto; the 176 is driven 45 fms. east of ditto. These levels are in killas, and the lode in each is small and poor. We have intersected a lode in the 40 fm. cross-cut, driving south of Williams's sump; it appears to be about 9 fm. wide, but from the water being in we are unable to report as to its quality. We last week sampled 438 tons of ore, and expect to raise 400 tons for January and February. In the *Barrier* we are at present doing nothing.

CWM ERFIN MINE.—At a meeting of adventurers held at the offices, George-yard, Lombard street, on Tuesday, the 29th Jan.—WILLIAM NICHOLSON, Esq., in the chair.—The accounts, showing balance in favour of mine of 16*l.* 19s. 9d., were passed, subject to production of vouchers. A call of 10s. per share was made. The resignation of Mr. T. P. Thomas, as purser, having been tendered and accepted, it was resolved, on the motion of Mr. Thomas, seconded by Mr. Stride, that the entire management of the mine be immediately transferred to Mr. John Taylor, jun., and that he be paid a salary of 50 guineas per annum for his superintendence of the same, and also allowed 50 guineas per annum for clerks, stationery, rent, and other office charge; and that the call just made be paid to him, at his offices.

CORNISH STEAM-ENGINES.

[Abstract from Browne's *Cornish Engine Reporter*, from Dec. 20 to Jan. 21.]

PUMPING-ENGINES.		
Number reported		29
Average load per square inch on the piston, in lbs.		13·0
Average number of strokes per minute		6·2
Gallons of water drawn per minute		6224
Average duty of 17 engines—being million lbs. lifted 1 foot high, by the consumption of 1 cwt. of coals		67·7
Actual horse-power employed per minute		1230·8
Average consumption of coals per horse-power per hour, in lbs.		4·2
ROTARY-ENGINES—WHIMS.		
Number reported		20
Number of kibbles drawn		71,760
Average depth of drawing, in fathoms		133·2
Average number of horse-whim kibbles drawn the average depth, by consuming 1 cwt. of coals		51·4
Average duty of 12 engines, as above		18·6
STAMPS.		
Number reported		7
Average number of strokes per minute		14·3
Average duty of 5 engines, as above		39·1
Actual horse-power employed per minute		158·4
PUMPING-ENGINES DOING HIGHEST DUTY.		
Par Consols	80-inch single	*Millions* 99·1
Fowey Consols	80-inch single	87·5
Great Polgooth	80-inch single	85·8
West Fowey Consols	60-inch single	79·0
North Pool	50-inch single	74·9
Callington	50-inch single	74·9
Trelawny	50-inch single	73·4
Stray Park	60-inch single	70·0
WHIM-ENGINES.		
Fowey Consols	22-inch double	*Millions* 29·6
Par Consols	24 & 13-inch Sims's combined	28·0
Fowey Consols	22-inch double	24·2
Par Consols	24-inch single	19·8
Great Polgooth	22-inch double	19·2
Devon Great Consols	30 and 16-inch Sims's combined	18·0
STAMPING-ENGINES.		
Great Polgooth	35-inch double	*Millions* 52·2
Lewis Mines	52 and 28-inch Sim's combined	50·2
South Caradon	26-inch single	48·1

[From the *Plymouth Journal.*]

The high and advancing price of tin, copper, and lead, combined with the great abundance of unemployed capital, and the general want of confidence in railways and their directors, added to the very large number of mines which even during the extreme depression of 1848 and 1849 paid dividends, have combined to give unusual activity to the mining market. From the most authentic sources in the west, we learn that a large amount of capital is being invested in the mines (most of which have been partially worked), adjacent to Penzance, Hayle, St. Ives, and Camborne. The Liskeard or Caradon district is feeling the movement, and many setts are taken up, and companies being formed to prosecute mining operations in that locality. In the vicinity of Callington, symptoms of revival are not wanting, and in the Tavistock district, although the spirit of enterprise developes itself more slowly than in the west, there is a general movement, and we venture to think, from the amount of business-like habit and prudence possessed by many of the men most active at this time, that the shareholders' money will not, as has too frequently been the case, be thrown away in expensive and useless erections and extravagant salaries; and, moreover, that capitalists will under such guidance learn that mines to be worked with success must be prosecuted with the same vigour, economy, and prudence, that men are wont to bestow on their own private undertakings, and to withhold from joint-stock undertakings. Let the miners remember the old adage, "That what is everybody's business is nobody's work;" and above all, beware of the management being confided t othe "merchant adventurer," whose main profit may be made out of the supplies "turned into," instead of the ores "turned out of" the mines.

NORTH WHEAL FRIENDSHIP.—During the last month, or longer, nothing has been done on the copper lode, in consequence of the severity of the weather, our leats having been filled with snow, &c., and the mine with water. The rise in the back of the deep adit is looking very fair, producing, on an average, about 15 cwts. of lead per fm.; and, when holed to the 24 fm. level, a large and valuable piece of lead ground will have been laid open. A level driving north from the boundary rise is also turning out very well for lead, and leaving a good back. The tributers (four pair) are all doing well, at about 12s. 6d. in 1*l.* on the average.

TAVISTOCK CONSOLS.—The lode in the adit level east is large, and composed of mundic, peach, spar, and gossan. I expect that the men will resume sinking the engine-shaft in the course of this week.

PLYMOUTH WHEAL YEOLAND.—The engine-shaft is nearly down to the 32 fathom level. We hope to get the shaft cased down, and to commence driving in a fortnight. The shaft is producing a little tin, but not rich. The lode in the 20 fm. level east is large, and producing good stones of tin, better than we have seen it in this level before. If this continues, it looks well for Wheal Yeoland East. The other parts of the mine much as usual.

ASHBURTON.—*South Plain Wood:* In the adit driving west on No. 1, or Nicholson's lode, we have met with some beautiful stones of yellow ore; the general appearance of this lode has much improved, the costeanings have been partially successful in proving the position of our lode.

ASHBURTON UNITED MINES. The severe weather has prevented our wheels from working, and hindered our tin dressing. We are making good use of our time, and expect in a fortnight to have a batch of tin ready for the smelters. The pitch at the old Footway shaft is still holding on.

We understand that two mining setts have been taken below South Plain Wood of the Rev. Mr. Kitson and Lord Cranstoun, and that a third party are in treaty with Messrs. Sowdye for a lease of minerals on their land. On the whole, mining energy is manifesting itself here.

WAYE ALSTON.—No alteration has taken place in the stratum through which we are driving. We expect to cut our lode next month.

WHEAL FRANCO.—The lode in the 62 fm. level, east of the engine-shaft, is about 4 ft wide, and composed principally of soft can and mun lic, with occasional good stones of ore—a very promising lode. The lode in the 62 fm. level west is large, and although not rich, is kindly for making ore in depth. The winze in the bottom of the 47 fm. level is producing a little ore, but is not rich. I think that the lode promises to turn out well provided the mine is worked at a much deeper level.

WIDDER MINE.—The cross-cut driving north has improved in appearance; a large quantity of water is coming out from one end, and the country generally carries mundic.

ASHBURTON.—The friends of social progress will learn with pleasure that the preliminary steps have been taken in this town to form a Geological and Mineralogical Society. A committee for that purpose has been appointed, among whom Messrs. Henry and George Caunter, R. Palk, H. C. Creagh, S. P. Knowles, and H. H. Hele are active members. The suggestion has been most favourably received in South Devon by the numerous persons to whom the committee in the first instance addressed themselves, and the list of gentlemen desirous of becoming members is rapidly increasing. We understand that the society will be formally established by a public meeting, to be held some time in this month. In addition to the more direct objects of the institution, it is intended, we hear, to enlarge the sphere of its utility, by particular attention to agricultural chemistry. Whatever differences of opinion may exist as to the policy of Free Trade, there can be none as to the advantages of applying the powerful aid of science to the culture of the soil; and the happiest solution of the farmer's present difficulties would be his ability, by improved processes, so to increase the produce of his acres as to yield him a fair return for capital, skill, and industry, even at the lowest prices which any reasonable calculation can show to be probable as a future average

ACCIDENTS.

Wheal Spearne Moor Mine.—An accident, which caused an amputation of the left hand of a young man, named Thomas Hicks, occurred on Friday last. The young man's eyes and face were also seriously injured, but no doubt his eyesight will be preserved. We believe the accident occurred in picking out a hole that missed fire.—*Penzance Gazette.*

Balnoon Mine, Lelant.—John Stratton, of Towednack, fell out of the ladder to a depth of about 20 fathoms, and was seriously injured.

Dudley.—B. Oakley and a companion were seriously injured by the explosion of a quantity of gunpowder in a pit at the Castle Stone Quarry.

Ystalyfera.—An explosion of fire-damp occurred at Wern Vach pit last week, owing to carelessness, by which W. Griffiths, collier, severely burned his face and hands.

Swansea.—As three men were being drawn up Ynis-y-Gession pit, when 180 feet from the bottom, and 300 from the top, the axle of the fly-wheel broke, cutting off all connection with the engine; the fly caught in the cog-wheel, and thus prevented the revolving of the drum, or all must have been killed.

Wolverhampton.—Samuel Carpenter was killed in a coal pit at Bull's Fleck, near Willenhall, in consequence of the fall of a large quantity of rock, by which his head was dreadfully fractured.—William Blewes was killed by the fall of a large quantity of clod whilst he was loading a "bowk" in the hollow of a stone pit at the Grand Junction Colliery, belonging to Messrs. Firmstone and Co.

Charnock Richard.—Robert Tyrer, aged 11, was being drawn up the shaft, at the Byor

Pit, the property of Mr. Darlington, when the skip became unhooked on one side. He gave an alarm, was let down, and, being taken out, gave two or three sighs, and died from sheer fright alone, not having received the slightest bodily injury.

Dolcoath Mine, Camborne.—John Bailey, of Camborne, fell into a shaft, and was killed

BAROSSA RANGE MINING ASSOCIATION—SOUTH AUSTRALIA.

SIR,—The Editor of the *South Australian Gazette*, in his paper of 26th May last, has made some very incorrect and unwarrantable remarks, based upon an extract from your Journal of the 3d February, which states that in a letter received per overland mail, and dated 20th October, 1848, I said, "that Captain Rodda, for the Barossa Range Mining Company, had raised 20 tons from the company's mine at Lyndoch Valley, and had found, by assay, 3½ ounces of gold in a ton of copper." Now, as I never made such a statement, so evidently at variance with what I (as one of the colonial board) knew to be the fact, and contrary to an official report forwarded through Capt. R. Rodda, who I believe has lately addressed you on the subject, I beg you will do me the justice to set this matter to rights, through the medium of your Journal. J. H. ANGAS.

Tarrawatta, South Australia, July 19.

[We readily publish Mr. Angas's contradiction of the assertion that 20 tons of copper ore, from Lyndoch Valley, had been assayed by Captain Rodda, and found to contain 3½ ounces of gold to the ton, as we did the latter gentleman's communication of the 14th June, in the *Mining Journal* of the 8th Dec. last. It is there explained that it was but 1 oz. 12 dwts. per ton; and, while we regret the insertion of such errors, we can only say, the communication reached us through the office of the South Australian Company, and was published in the following form on the 27th January:—"Dispatches have been received by the South Australian Company from their colonial manager at Adelaide, dated 30th September, from which the following is an extract:—'Capt. R—— tells me he has raised about 20 tons of ore from the sett in Lyndoch Valley, and that he has discovered, on assay, 3½ ozs. of gold in a ton of the ores raised.'" Referring to this paragraph in our next paper, of 3d February, a correspondent stated that the sett of Lyndoch Valley belonged to the Barossa Company, and that Capt. Rodda, their agent, was the Capt R—— referred to. Mr. Angas will perceive that no reference whatever was made to him, and that the paragraph did not state the 20 tons of ore yielded 3½ ozs. per ton, but that 1 ton had yielded that quantity.

SOUTH AUSTRALIA.—The *Daily News* has been favoured with the perusal of a series of letters from an intelligent and influential settler in this colony, the most recent of which is dated August 4, 1849. In that letter we find the following interesting passage:—"Our mining and all other interests here are going on most satisfactorily. Our smelting-house has been for some time at work; they are now turning out about 20 tons of fine copper per week, some of which has already been sent to India and China, to compete with that which is sent from the old country. We have had about 8000 emigrants arrived this year, all of whom get employment as soon as they are landed, without any sensible diminution of wages. I really think that, for many years to come, 20,000 a year would not be too many; and tradesmen of all sorts are in great request. We have too many of the half-and-half; and little gentlemen are as plentyful and troublesome as fleas."

Some further light is thrown on the smelting-house, mentioned in the above extract, and on the copper affairs of the colony, wages, &c., &c., in an earlier letter, dated April 17, 1849:—"The state of the copper trade in England has reacted out here, and a considerable reduction has been made in the wages of the miners, although they are now getting double what they would receive for the same quantity of work in England. At first there was a strike among the men, but that is all over, and a greater number are now employed at the Burra Burra Mines than ever before, and the ore continues to be of the same superior quality as at first. A smelting-house is now being erected at Kooringa, at the cost of a company in England. A contract has been entered into with the mining company there, by which, for seven years, 30,000 tons of ore, of an average quality of 10 per cent., are to be taken per annum. This will be of great advantage to the mining interest out here, as ore of that quality would not pay for sending to England. The smelting-house will be in full work in a month or two; it has already made a beginning. I was at the works a few days ago, and was shown some of the first, which had 90 per cent. of copper, and in one process more would come out pure copper. They consider that they shall, in the course of 12 months, be able to supply all that can be wanted for the East India and China market. This will, of course, very materially interfere with our trade at home, but as the price will necessarily be lower, an increased consumption will, as in other trade, soon put all to rights."

NEW SOUTH WALES.—Advices of the 23d September (being of intermediate date) have been received from Sydney, by which it appears that the California fever raged fiercer than ever: 12 ships (several of them 500 tons and upwards) were laid on for San Francisco, and were filling fast with goods and passengers; the cargo generally shipped consisted of provisions and lumber. One ship had sailed which grossed 5000*l.* freight and passage money, and another vessel had grossed 5600*l.* The withdrawal of labour from the colony was considered injurious to its prosperity. There was very little produce for sale. A small parcel of southern oil had been disposed of at 22*l.* per ton. The report of coal of a superior description, and in large quantities, having been discovered near Wollongong, is confirmed. It is within two miles of the town, and a road is now being made to it; and when it is completed samples of the coal (which is stated to be very bituminous) will be sent to Sydney. This discovery promises to be of great importance to the colony generally, but more particularly to the district.

THE COAL DEPOSITS IN VAN COUVER'S ISLAND.—Accounts have been received from Mr. Douglas, the agent to the Hudson's Bay Company, with information of the safe arrival of Capt. Grant, in the *Harpooner*, with a party of miners and emigrants, in health and spirits. He had chosen a place for a settlement 25 miles from Port Victoria, at a spot combining numerous advantages, such as a good mill stream, abundance of timber, &c. The progress at the mines is said to be most satisfactory, the defences being finished, and several buildings erected. The most friendly relations have been established with the natives, who, without being made acquainted with our future plans, are exceedingly useful in getting out coal, of which there was 750 tons ready for shipment in the beginning of last month, so that no disappointment is apprehended in providing the 1000 tons we ageed to furnish Capt. Stout, agent of the Mail Steamer Company, for the current year. The coal beds have been found fully as extensive as at first supposed; they have been traced by the outcrop along the whole line of coast from M'Neill's to Beaver Harbour, a distance of 20 miles; also about 12 miles across the island, from east to west, to the head of Quatsenah inlet, where they again crop out. The quality is said to be excellent for steam navigation purposes.

THE WEST INDIA MAIL.—The West India steamer, *Medway*, arrived at Southampton on Friday midnight, with the mails, a valuable cargo, and nearly $2,000,000 on merchants' account. Our Jamaica news is to the 7th January. The island was healthy. The *Medway's* news from California is to the 1st December. Gold still abundant; sickness, however, prevails. At Chagres four steamers had arrived in five days from the United States, with 550 passengers for California; while at Panama 1200 persons were waiting to proceed to the diggings. Her Majesty's ship, *Constance*, arrived there on the 28th November, with $1,000,000 from Mazatlan, and sailed again on the 6th December for the same port, to take on board a similar amount.

THE UNITED STATES.—The packet-ship, *Washington*, arrived at Liverpool yesterday afternoon, bringing after a quick passage from New York, papers to the 11th inst. The steamer, *Alabama*, arrived from Chagres at New Orleans, with $250,000 in gold and dust. The steamer, *Unicorn*, was to leave San Francisco on December 10, and was expected at Panama on January 1. When the *Alabama* left, the *Falcon* had not arrived at Chagres. The *Panama* says that a gold mine has been discovered on the Isthmus, on which some of the adventurers had commenced digging in preference to going to California. Scurvy and other diseases prevailed to a great extent at the diggings, and in San Francisco. According to the law enacted by the Republic of New Grenada, free trade exists on the Isthmus on and after the 1st of January.

EAST WHEAL FORTUNE.—On the 12th Jan., Mr. Carey, one of the principal shareholders in this mine, gave the men employed a dinner at which about 25 sat down. The greatest harmony prevailed on the occasion, and several resolutions were passed, reflecting great credit on both agent and men. We have also been informed that the manager, Captain W. H. Verran, has been presented by the same gentleman with one of Wilton's improved miners' dials, for his past successful efforts, and as a stimulus to future exertions.

At WHEAL JUNE, in the parish of Landaulph, they commenced operations on Monday last; and, when only 3 ft. under the surface, they cut an exceedingly rich lode, which produced, by assay, 200 ozs. of silver to the ton; the lode has held down good, and is now 4 ft. by about 3 fms. in depth, and the ore they are now breaking is considered extraordinarily rich; but, as I shall have the assay in a few days, I will furnish it.

THEATRE ROYAL, DRURY LANE.—A grand juvenile night was given on Thursday evening last at this theatre, for the amusement of the youthful patrons of the drama. The entertainments selected were the pantomime and the operatic melodrama of *Rob Roy*. The parts of *Rob Roy*, the *Bailie*, and *Helen M'Gregor*, were severally filled by Messrs. Cooper, Emery, and Mrs. Ternan The character of *Dougal*, but little understood on the English stage, was acted by Mr. Manderson, who gave an effective picture of the Highland clansman of the last century, without any of those exaggerations which generally mar the effect of these parts. As we have no efficient representative of Scotch character, Mr. Mandereon will fill up the gap which has so long been vacant.

MR. EVAN HOPKINS, C.E., F.G.S., &c, CONSULTING MINING ENGINEER,
BARRINGTON-ROAD, BRIXTON, AND 18, AUSTINFRIARS, CITY.

MINING SHAREHOLDERS, and those who intend to INVEST their CAPITAL in MINES, requiring PERIODICAL ADVICE for their government, SURVEYING and INSPECTION of any description of MINERAL PROPERTY, may make an ANNUAL ARRANGEMENT, on moderate terms, on application (by letter) to Mr. HOPKINS.

MINE CAPTAINS and MINING ENGINEERS receive INSTRUCTION "How to Observe Mineral Property," as usual, by letter.

N.B.—All communications considered as private and confidential.

*** E. H. begs to return his thanks for the very kind expressions of confidence conveyed in the letters of those who have been guided by his advice during last year in England and on the continent, and the important benefit derived therefrom. He trusts it will continue to prove equally beneficial to all legitimate mines and miners.

BICKFORD'S PATENT SAFETY FUSE.—The Patentees of the ORIGINAL, and only real, SAFETY FUSE, beg to inform Merchants, Mine Agents, Railway Contractors, and all persons concerned in Blasting Operations, that, for the purpose of protecting the public in the use of a genuine article, the PATENT SAFETY FUSE *has now a thread wrought into its centre*, which being patent right, infallibly *distinguishes it from all imitations*, and ensures the continuity of the gunpowder The Safety Fuse is now protected by a Second Patent, and manufactured by greatly improved machinery. BICKFORD, SMITH, & DAVEY, Camborne, Cornwall.

ENGLISHMEN! shortly will be published, an EXPOSITION of the PARSIMONIOUS SYSTEM ADOPTED in the WORKING of COLLIERIES in ENGLAND and WALES—showing the Cause of Explosions and other Casualties in Mines, and consequent wholesale destruction of human life—together with the necessity for Government Inspection of Collieries—Coercive Enactments to Enforce the known Means of Safety—Statistics, &c., in the form of an Appeal to Parliament and to the Public generally. Price 2s. 6d.—By C. COLWELL, Borough-road, Southwark.

N.B.—As the number of copies will be limited—beyond those intended for Members—orders should be given immediately to any bookseller in your neighbourhood.

Death of J. T. Treffry, Esq.

We have in another column announced the melancholy fact of the decease of this gentleman, which took place at his residence, Place House, Fowey, on the 29th January last Although for a considerable period Mr. Treffry had not enjoyed his usual health, not surprising to those who witnessed his mental and bodily exertions, still his death was somewhat sudden, and took his friends by surprise. He was not only the most extensive adventurer and worker of mines in Cornwall, but was also a silver-lead smelter, ship owner, merchant, and farmed upwards of 1000 acres of land, introducing all the modern improvements in husbandry, and constantly directing his attention to the economy of labour. He was his own architect in the restoration of the ancient palace, called Cuni Court, at Fowey, and with a correctness of detail, and accuracy of taste, found in few renovated buildings of the style of the fifteenth century. It contains some of the most splendid decorations in the kingdom, consisting of granites and marbles entirely Cornish, some specimens of which he presented to, and were accepted by, the Queen, on her visit some time since. The ports at Par and Newquay were his, and constructed at his expense; and he designed the railway now constructing across the county, to link the English and Bristol Channels. The canal at St. Blazey, and the stupendous viaduct at Luxullian, are also evidences of his taste, ability, and pecuniary means.

Mr. Treffry formerly sat as Member for the now disfranchised borough of Fowey, by the name of Austin, towards which, through the ill-treatment he received from electioneering arrogance, he never since felt any good will, and done all in his power to divert the traffic from its port. As an employer of labour, and a true friend to the poor, he will be, we fear, irreparably missed by thousands, and the mining interests of the county have lost one of their most zealous, enthusiastic, and able advocates. He saved Fowey Consols Mine from the ruin which threatened it through doubtful prospects, legal disputes, and private quarrels, and made it one of the most profitable mines in the county. Under his management, it produced ores to the amount of 2,000,000*l.*, and returned as profit 180,000*l.* He opened Par Consols, of which, as well as the former, he held three-fourths.

Mr. Treffry was born on the 1st May, 1782: he was the son of Joseph Austin, Esq., of Plymouth, by Susanna Anne, daughter and co-heiress of Thomas Treffry, of Place, and was thus in his 68th year, and died a bachelor. His mother died, about six years since, at the advanced age of 90 years. There was an originality and useful simplicity about all the great works which Mr. Treffry undertook, which show that had he had to depend on his labour for an inheritance, he would have been one of the first engineers of the day; as it is, his works will form lasting monuments of his greatness, and no one can traverse the county without having his remembrance called to the true friend of Cornwall and mankind at large. On the announcement of his decease, all the shops in Fowey, with two or three exceptions, were closed. His funeral, which is to be a public one, takes place on Tuesday next, at 11 o'clock forenoon.

TRESAVEAN.—At a meeting of adventurers, held at the mine, on Tuesday last, the accounts for November and December were examined and allowed, showing—By balance at the end of Oct., 943*l.* 13s. 4d.; ores sold (less dues), 1951*l.* 14s. 4d.; sundry credits, 202*l.* 5s. 5d.=3097*l.* 13s. 1d.—To costs and merchants' bills, 2250*l.* 13s. 9d.: balance now in hand, 846*l.* 19s. 4d.

TRETHELLAN.—A meeting of adventurers in this mine took place on Tuesday last, when the following accounts for four months ending December last were produced and passed, and a dividend of 5*l.* per share was declared:—By balance from last account, 511*l.* 19s. 2d.; ores sold (less dues), 1052. 19s. 8d.; sundry credits, 220*l.* 14s. 7d.=1785*l.* 13s. 5d.—To costs and merchants' bills, 991*l.* 8s. 6d.; dividend of 5*l.* per share, 600*l.*=1591*l.* 8s. 6d.: balance at bankers, 194*l.* 4s. 11d.

WEST TRETHELLAN.—At a meeting of adventurers, held at the mine, on Tuesday last, the accounts for four months ending December last, were examined and passed as follows:—By balance from last account, 63*l.* 16s. 8d.; ores sold (less dues), 341*l.* 12s. 3d.=405*l.* 8s. 11d.—To costs and merchants' bills, 239*l.* 1s.: balance in bankers' hands, 166*l.* 7s. 11d.

OLD VITIFER MINE, DARTMOOR.—A correspondent informs us that a most disgraceful affair took place at a public-house on Dartmoor on Saturday last, where the miners went to divide their pay and to drink. In the evening, a most brutal fight took place, in which the agent, much to his disgrace, instead of using his authority to quell the disturbance, encouraged the combatants, by calling out "good boys," "at 'em again," and other such expressions of approbation at the sight. The writer says, it is no wonder that complaints should be made by the adventurers as to so little ore being returned; for this is not less than the third or fourth time he had heard of similar quarrels. His letter is dated on Wednesday last; and he states the men who fought had not up to that time returned to work.

SHARE JOBBING.—In the Court of Exchequer, a few days since, a cause, Rialton *v.* Brown, was tried, which possesses considerable interest to a very numerous class of persons in the City, as will be readily inferred when we state that it concerns the hypothecation of shares. It appears by the facts stated in argument, that a Mr. Ebenezer Balls Brown, bill-broker and share-dealer, lent a certain sum upon the security of 75 Madrid and Valentia Railway and 20 Treleigh mining shares, and at a period when the market ruled much below its present range. A considerable advance having recently taken place, the borrower was naturally anxious to redeem his shares, the more especially as he had for a long time been paying monthly "continuation," which, as all who are acquainted with this kind of business must be aware, is very onerous. Accordingly, the amount due was tendered, 52*l.* 16s.; but the defendant repudiated all knowledge of the matter. Fortunately, a small memorandum was produced, which secured a verdict to the owner of the shares, with damages of 140*l.* and costs; and we think the case should operate as a suitable warning to parties who hypothecate shares, to get a proper acknowledgment at the time, which they now seldom do.

JURISDICTION OF STANNARIES' COURT.—In the Court of Queen's Bench, on Wednesday last, Mr. Greenwood showed cause against a rule (Newton *v.* Pencarrow) which had been granted, calling on the plaintiff to show why a prohibition should not issue to prevent him proceeding with an action for goods sold and delivered, which he had brought against the defendant, who is a minor, in the County Court of Cornwall. Mr. Greenwood contended that the action was properly brought in the County Court, and that the defendant never had any privilege to be sued in the Stannaries' Court. If the Stannaries had held any exclusive privileges, they had been done away with by the 67th section of the County Court Act. Mr. Smirke and Mr. Smith contended, for defendant, that the jurisdiction of the Stannaries' Court still continued, and that the facts of the case entitled him to claim its protection.—The court took time to consider its judgment.

RISCA.—An eminent and wealthy Liverpool Company, have, it is said, completed arrangements for the purchase of an immensely valuable property, in this neighbourhood—an event which is calculated to give an impetus to Risca (already in a prosperous state), which will place it amongst the leading places of mineral importance in Monmouthshire.—*Monmouthshire Merlin.*

The colliers in the employ of Mr. Crawshay Bailey, who were on strike, returned to work on Wednesday night, on Mr. Bailey's terms.—*Ibid.*

RAILWAY BILLS ON STANDING ORDERS.—On Monday the standing orders were declared to have been complied with in the case of the following bills:—Dublin and Belfast Junction Railway, for extending time for completion of works and revival of powers for purchase of lands. South Eastern Railway, for discontinuance of payment of interest upon calls on No. 3 and 4 shares, and to enable the holders to participate in dividends after the 30th June, 1850, also to enable the company to raise additional capital not exceeding 1,200,000*l.* by new shares. The Oxford, Worcester, and Wolverhampton Railway, for carrying into effecting the purchase of the Stratford-upon-Avon Canal, the purchase-money being 108,330*l.*, and liabilities 52,104*l.*, making 160,434*l.* for raising which powers are to be taken; also, to take power for the Shrewsbury and Birmingham, and Shrewsbury and Chester, and South Staffordshire Railways to subscribe to the Oxford, Worcester, and Wolverhampton Railway not exceeding 500,000*l.* The York, Newcastle, and Berwick Railway for payment of the purchase-money, 2,754,925*l.*, for Great North of England Railway. The Edinburgh and Glasgow and Edinburgh and Bathgate Amalgamation. The Glasgow, Airdrie, and Monklands Junction Railway and Glasgow College Lands (dissolution of railway company and repeal of Acts.)

FLUCTUATIONS IN THE STOCK AND SHARE MARKET,
DURING THE MONTH OF JANUARY.

Stocks and Shares.	Share.	Paid.	Fr. Jan. 1.	Highest.	Lowest.	Jan. 31.
Consols	—	—	96¾	97¼	96	96½
Exchequer Bills	—	—	60*s* pm.	63*s* pm.	57*s* pm.	60*s* pm.
RAILWAYS.						
Brighton	Stock	£100	£79	£85½	£77½	£83½*
Caledonian	50	50	10¼	12¼	10¼	12¼
Eastern Counties	20	20	6¼	7¼	6¼	7¼
Great Northern	25	20	7¼	8¼	6¼	7¼
Great Western	100	100	58	70	57½	65½
London and North-Western	Stock	100	111	120	110	116½
Midland	Stock	100	45	46½	42½	44¼
North Staffordshire	20	17½	7¼	7¼	7¼	7¼
South-Eastern	£33	2 4	£3 2 4	18½	20½	18½	20
South-Western	Stock	100	60½	70	60	68½
York, Newcastle, & Berwick	Stock	25	16¼	17½	16¼	16½
York and North Midland	50	50	17¼	18½	17½	18½
Boulogne and Amiens	20	20	7¼	8½	7¼	7¾
Northern of France	20	14 8	12½	13½	12½	12¾
East Indian	20	—	4	4½	3½	4
Great Indian Peninsula	5	½	¼	¼	¼	¼

The range in Consols has been very moderate, but in railway shares, with few exceptions, there has been a decided rise. It is in the foreign market that speculation has been most observable, Spanish American Stocks having taken a singular start. Thus, Buenos Ayres has ranged between 47*l.* and 55½*l.*; Ecuador between 3½*l.* and 4½*l.*, and Peruvian between 58½*l.* and 74*l.* In Russian scrip the fluctuations have been between 2½*l.* and 4*l.* premium.—*Times.* * Ex div.

LATEST CURRENT PRICES OF METALS.
LONDON, FEBRUARY 1, 1850.

ENGLISH IRON. *a*	*per ton.*		
Bar, bolt, & square, London	£5 15—6 0		
Nail rods	6 15 0		
Hoops	7 12 0—8		
Sheets (singles)	8 15 0		
Bars, at Cardiff & Newport	5 0—5 7 6		
Refined metal, Wales*	3 5—3 10		
Do. anthracite*	3 15 0		
Pigs in Wales	3 5 0		
Do. do. forge	2 15 0		
Do., No. 1, Clyde *net cash*	2 9 6—2 10		
Blewitt's Patent Refined Iron for bars, rails, &c., free on board at Newport*	3 15 0		
Do., do., for tin-plates, boiler plates, &c., ditto	4 10 0		
Stirling's Patent Toughened Pigs } in Glasgow	2 17—3 0		
Stirling's Patent Toughened Pigs } in Wales	3 10—3 15		
Staffordshire bars, at the works	6 0 0		
Pigs, in Staffordshire	3 5 0		
Rails	5 5—5 10		
Chairs	4 0 0		
FOREIGN IRON. *b*			
Swedish	11 10—12 0		
CCND	—		
PSI	—		
Gourieff	—		
Archangel	—		
FOREIGN STEEL. *c*			
Swedish keg	14 15 0		
Ditto faggot	15 0 0		
ENGLISH COPPER. *d*			
Sheets, sheathing, & bolts, *p. lb.*	0 0 10		
Tough cake *per ton*	88 10 0		
Tile	£87 10 0		
Old copper *e* *per lb.*	8½*d*		
Yellow Metal Sheathing	9½*d*		
FOREIGN COPPER. *f*			
Russian	—		
ENGLISH LEAD. *g*			
Pig *per ton*	17 0 0		
Sheet	17 15—18 0		
Red lead	18 0 0		
White ditto	23 0 0		
Patent shot	19 0 0		
FOREIGN LEAD. *h*			
Spanish, in bond	15 0—15 10		
American ditto	—		
ENGLISH TIN. *i*			
Block *per cwt.*	4 5 0		
Bar	4 6 0		
Refined	4 11 0		
FOREIGN TIN *k*			
Banca, H. C.	4 7 0		
Ditto, for Export only	4 5 0		
Straits	4 5 0		
TIN-PLATES. *l*			
IC Cake *per box*	1 8 6—1 9		
IC Charcoal	1 13—1 14		
IX ditto	1 19 0		
SPELTER. *m*			
Plates, warehoused *per ton*	17 15—18 0		
Ditto, to arrive	17 5—17 10		
ZINC. *n*			
English sheet *per ton*	22 0 0		
QUICKSILVER *o* *per lb.*	4*s.* 0*d.*		

Terms.—*a*, 6 months, or 2½ per cent. dis.; *b*, ditto; *c*, ditto; *d*, 6 months, or 3 per ct. dis; *e*, 6 months, or 2½ per cent. dis. ; *f*, ditto ; *g*, ditto; *h*, ditto; *i*, ditto; *k*, net cash; *l*, 6 months, or 3 p. ct. dis.; *m*, net cash; *n*, 3 months, or 1½ p. c. dis.; *o*, ditto, 1½ dis.
* Cold-blast, free on board in Wales.

REMARKS.—There is very little change to notice in the metal market this week—prices for all sorts are well maintained, and a fair legitimate demand is going on.—Welsh bar-iron continues firm at last week's quotation. Parcels in second hands for immediate specification may be had at 5*l.* 5s., but makers generally ask 5*l.* 7s. 6d. and 5*l.* 10s. per ton, free on board at the port.—In Scotch pig-iron, during the week, a speculative demand caused the price to advance to 50s. 6d. for mixed Nos.; a slight re-action has since taken place, and we write the price 49s. for mixed Nos., and 50s. for all No. 1.—In spelter last week's quotations are barely maintained, and we hear of very little busines doing. Stock in London this day about 3800 tons.

GLASGOW, JAN. 31.—There has been a good deal of excitement in the pig-iron market, and a large amount of business done this week. The price, at the beginning of this week, touched 51s., but within the last two days has shown symptoms of declining, and the price of mixed Nos. to-day can only be quoted at 49s. 6d. to 50s., cash—few sellers.

MANCHESTER.—The circumstances mentioned in our report of last week have led, as we anticipated, to increased activity in the iron trade, particularly as respects Scotch pigs, which have risen within the last few days 2s. per ton: the appearance of the market is decidedly healthy, and the tendency is still upwards. We quote for good brands, free on board at Glasgow, 50s. 6d., cash; at Runcorn and Fleetwood, 56s. 6d. to 57s. per ton.

EXPORTATION OF THE PRECIOUS METALS.—The following are the official returns of the exports of gold and silver from the port of London for the last week:—Silver coin to Belgium, 33,000 ozs.; ditto bars to ditto, 22,000—Gold bars to Dunkirk 4500 ozs.—making a total export of 55,000 ozs. of silver, and 4500 ozs. of gold.

New Patents.

LIST OF PATENTS GRANTED DURING THE PAST WEEK.

J. Dalton, of Hillingworth, calico-printer, for certain improvements in and applicable to machinery or apparatus for bleaching, dyeing, printing, and finishing textile and other fabrics, and in the engraving of copper rollers and other metallic bodies.

E. Heycock, of Leeds, York, merchant, for certain improvements in the finishing and dressing of woollen cloths.

Wincesias Le Baron de Tranx de Wardin, of Liege, in the kingdom of Belgium, for certain improvements in looms for weaving linen, woollen, and cotton cloths, and in machines for preparing the yarns for such cloths before entering the loom, and in a machine for finishing grey and bleached linen cloths.

Thomas Schofield, of Cowbrook, Hulme, near Manchester, Lancaster, fustian dyer and finisher, and Henry Horabin, of Royton, near Oldham, in the same county, fustian cutter, for improvements in machinery for cutting fustians and certain other fabrics to produce a piled surface.

T. Berger, of Hackney, gentleman, for improvements in the manufacture of starch.

R. Roberts, of Manchester, engineer, for improvements in the manufacture of certain textile fabrics, in machinery for weaving plain, figured, and terry or looped fabrics, and in machinery or apparatus for cutting velvets and other fabrics.

D. Beatson, of Green-street, Stepney, Middlesex, mariner, for certain improvements in instruments for taking, measuring, and computing angles.

E. Riepe, of Finsbury-square, Middlesex, merchant, for improvements in the manufacture of steel. (Being a communication.)

J. Spiller, Battersea, Surrey, engineer, improvements in cleaning and grinding wheat.

J. Mason, of Rochdale, and M. Smith, of Heywood, both in Lancaster, machine makers, for certain improvements in machinery or apparatus for preparing, spinning, and weaving cotton and other textile materials, and also improvements in the method of preparing yarns or threads, and in the machinery or apparatus employed for such purposes.

F. E. Colegrave, of Brighton, gentleman, for improvements in saddles, parts of which improvements are also applicable to the standing rigging and other furniture of ships or vessels, and to the connecting links or chains of railway carriages, and other purposes where tension, combined with a certain degree of elasticity, is required.

J. Templeton, of Glasgow, Scotland, manufacturer, for certain improvements in manufacturing figured fabrics, principally designed for the production of carpeting.

W. E. Newton, of Chancery-lane, civil engineer, for improvements in machinery or apparatus for making hat bodies, and other similar articles. (Being a communication.)

T. Bury, of Salford, Lancaster, silk, worsted, and piece dyer and finisher, and Nathan Ramsden, of the same place, calenderman and finisher, for certain improvements in the construction of machines for glazing, embossing, and finishing woven fabrics and paper.

A. Dumuller, of Mark-lane, London, for improvements in obtaining fibres from textile plants. (Being a communication.)

E. J. H. Valck, of the kindom of Belgium, miller, for improvements in grinding.

T. Richardson, of the town and county of Newcastle-upon-Tyne, chemist, for improvements in the manufacture of Epsom and other magnesian salts; also alum and sulphate of ammonia.

DESIGNS FOR ARTICLES OF UTILITY REGISTERED.

White and Grant, Glasgow, safety-cage and disengaging catch for mine shafts.
J. Sherratt and C. Pickering, Walworth, bottle neck and stopper.
T. Kennedy, Kilmarnock, waterproof gun nipple.
B. Levy, High Holborn, expanding vest.
J. Finlayson, Johnstone, thread finishing or polishing machine.
C. Loesley, Sheffield, back for razor blade.
John Head Hopkins, and Son, Birmingham, apparatus for heating water for baths and other vessels.—*Mechanics' Magazine.*

THE AYRSHIRE IRON COMPANY.—It will be remembered that about two years back this joint-stock establishment was found to be insolvent, with a debt of 240,000*l.* due to upwards of 300 creditors. The affairs of the concern were one mass of confusion from reckless mismanagement, and the shareholders were only awakened to a sense of their actual position by the report of the accountants to whom they had entrusted the task of investigation. They resolved, however, to face all their liabilities, let the result be what it might; and we now observe that, although they have been exposed to a long course of harassing litigation, and have as yet received very little out of the wreck of the company's assets, they have brought their trying duty to a close by the payment of the creditors of the last instalment of 2s. 6d. in 1*l.*, which completes the full liquidation. The number of shareholders was not less than 200, and when it is mentioned that it was in the power of each to have raised obstacles on technical grounds, and also that more than half were rendered insolvent, thus throwing an added pressure on the remainder, it will be felt that their good faith, both as a body and to each other, especially in the midst of the many opposite examples which have been going on around them, deserves to be honourably recorded.

Current Prices of Stocks, Shares, & Metals.

STOCK EXCHANGE, Saturday morning Eleven o'clock.

Bank Stock, 7 per Cent., 206½	Belgian, 4½ per Cent., —
3 per Cent. Reduced Ann., 96¾ 6	Dutch, 2½ per Cent., 55½ ¾
3 per Cent. Consols Ann., 96¼ 5¾ 6¼ ¼	Brazilian, 5 per Cent., 89
3½ per Cent. Ann., 98¾ ¾ ½	Chilian, 6 per Cent., 101½ 1
Long Annuities, 8¾	Mexican 5 per Cent., ex Coup., 29¾ ½ ¾
India Stock, 10½ per Cent., 268½ 9	Russian, 5 per Cent., 110½
3 per Cent. Consols for Acc. 96¾ 6 ¼ 6 ¼	Spanish, 5 per Cent, 18¾
Excheq. Bills, 1000*l.*, 1½d. 58 61 pm.	Ditto 3 per Cent., 37

MINES.—There has been a fair amount of business transacted during the week, and the inquiries for shares in leading mines are well maintained. It is gratifying to announce, that another advance in the standard has taken place.

Devon Great Consols have been done at an advance on last week's quotations. The general prospects of the mines are represented to be in a position highly gratifying to the shareholders. The recent improvements, but more especially the present appearances at Wheal Emma, afford ample cause for anticipating great results. We inadvertently stated last week, that "at Anna Maria a cross-cut driving south has intersected a branch, also worth 120*l.* per fm."—it was at "Old Maria."

South Tolgus and Treviskey and Barrier have been done at a considerable advance, arising from some important improvements; and an active inquiry for shares continues. South Basset, Stray Park, Carn Brea, Trehane, and Trelawny, have also been in request.

Condurrows are still in request. The prospects are represented as highly encouraging, especially in their progress towards the old mine. A winze below the 70 (2 fms. long, by 5 fms. deep) has yielded nearly 1400*l.* of copper ore, with every prospect of the lode continuing productive. In cutting some ground in an old shaft, a valuable branch of tin has been discovered, and the improvements generally are of a most cheering character.

Shares in the following mines have changed hands this week:—Devon Great Consols, South Tolgus, West Caradon, Trelawny, Treviskey and Barrier, Trehane, Heignston Down Consols, Tincroft, East and South Tamar, Mary Ann, Daren, Bedford United, Kirkcudbright, Tremayne, Tregorden, Tamar Consols, Cwm Erfin, Wheal Gennys, Devon and Courtenay, Stray Park, Carn Brea, Wheal Margaret, &c.

At the Treviskey and Barrier bi-monthly meeting, a dividend of 5*l.* per share was declared on Treviskey. The profit for the two months made by Treviskey appears to be 586*l.* 1s., and Barrier 55*l.*, reducing the balance against the latter to 57*l.* 14s. 3d., and the credit to the former 86*l.* 15s. 8d., with ore bills due, and not at maturity. The mine is represented in a productive and promising position, as will be seen by the report.

At the Bedford United Mines bi-monthly meeting, a dividend of 1000*l.* was declared for the past two months, being 5s. per share. The abstract statement of accounts presented showed a cash balance of 1162*l.* 10s. 11d., and it also appeared that a profit of 3830*l.* 1s. 11d. was made in the last 12 months; and in the last six months a profit of 2661*l.* 14s. 8d. had been realised, arising chiefly in consequence of the advance of standard for copper ore. The general accounts. up to end of April, show a balance of assets over liabilities of 4333*l.* 19s. 4d.

An elaborate report, prepared by the manager, was presented and approved of by the meeting, recommending the sale of the south part of the mines, to be annexed to the East Gunnis Lake sett, and worked conjointly, giving the option of the shareholders in the Bedford mines, to shares *pro rata* in the new company, which will, no doubt, be readily acceded to, by the entire sanction of the proprietary, at the meeting convened for the 14th inst., to consider this important proposition.

At the Holyford Copper Company's meeting, the balance-sheet for the six months showed a loss of 563*l.* 12s. 1d.—260*l.* of which has been expended at the Old Forge Mine, which has not yet proved productive. The report of the Holyford Mine is satisfactory, inasmuch that the deepest level is productive of rich ore. The shaft is now down 9 ft. under the 30, and the tribute pitches are looking remarkably well.

At the meeting of Cwm Erfin adventurers a call of 10s. per share was made; the balance in favour of the adventurers was 16*l.* 19s. 9d. The management of the mines was, by the unanimous sanction of the meeting, placed in the efficient hands of Messrs. J. Taylor and Co.

At the Tresavean meeting, the accounts showed—Ores sold for Nov. and Dec., 1951*l.* 14s. 4d., and a balance in hand of 846*l.* 19s. 4d.

At the Trethellan meeting, a dividend of 5*l.* per share was declared, leaving balance at bankers of 194*l.* 4s. 11d.

At the West Trethellan meeting, the accounts showed—Ores sold (less dues), 341*l.* 12s. 3d., and a balance in hand of 166*l.* 7s. 11d.

At the Heignston Down meeting, the accounts showed a balance in favour of the mine, 145*l.* 19s. 8d., with liabilities, 500*l.* 17s. 10d., and available assets to meet them, of 300*l.*

At the meeting of proprietors in Cameron's Coalbrook Steam-Coal, and Swansea and Loughor Railway Company, the directors stated in their report, that, having at the last two meetings been empowered by the shareholders to construct the branch connecting their colliery with the port and docks at Llanelly, they were taking the most active steps to carry out their instructions. They were fully impressed with the advantages which must accrue from the construction of the main line to Swansea, particularly as there was now hopes of the docks there being speedily constructed. The report was adopted.

At the Cobre meeting the resolution passed on the 8th January, empowering the directors to increase the amount of the reserve fund beyond the amount of 20,000*l.*, now limited by the Deed of Settlement, by adding 5 per cent. from the dividends, until it reached 40,000*l.*, was confirmed.

The half-yearly meeting of the United Mexican Company was held on the 30th January, at which a dividend of 7s. 6d. per share was declared. From the directors' report, the prospects of the mines were of the most gratifying kind. The newly-acquired setts of Promontorio and Aldana promise to become highly productive; the returns from the former had already nearly covered the purchase-money. At Aldana, the shaft is in course of sinking, and a small vein has been found, producing 41 marcs per monton. On the Mine of Jesus Maria y José, situate between two of the richest mines now working in Mexico, the surface operations have been completed, and the shaft in course of sinking. The statement of accounts showed a balance of 20,737*l.*, subject to deductions of 5939*l.* for unclaimed dividends, leaving an available balance of 14,796*l.* for the present dividend, exclusive of $30,000 shortly expected. The meeting was more numerously attended than we remember to have seen it for years, and strongly reminded us of the glorious good old foreign speculative times some eighteen years since. In contra-distinction to that period, however, the attendants, after the meeting on Wednesday last, "went on their way rejoicing," highly gratified at the improved prospects of the property, and with the idea of pocketing on the succeeding Friday (yesterday) a 7s. 6d. dividend. There appears every ground for satisfaction; the plant and available property, and stores, are improved in value; the old workings continue to produce about the usual returns, and the new mines continue to improve in appearance. There also appears some ground for hope that the debt due by the Mexican Government will shortly, through the interference of our Government to enforce the rights of international law, be placed in a course of settlement. We call particular attention to the full report, given in another column.

In shares of foreign mines there have been numerous and large transactions St. John del Rey, United Mexican, Imperial Brazilian, and Copiapo shares. have been much in request, and the very considerable improvements at Cocaes have brought the National Brazilian shares in demand. Australian, Santiago, Cobre, and Alten have also been done.

Dispatches have been received by H.M.'s packet, *Linnet*, from the Brazils.

The National Brazilian letters are to the 4th Dec., and are of the greatest importance, inasmuch as they advise of some valuable discoveries, with every appearance of a continuance, The produce for the last two days exceeded 5 lbs. per day; the produce from Cocaes, for eight days, was mks. 42 4 7 38.

The Imperial Brazilian Company received only the gold report from the 13th to the 30th November. The produce for that time, from Gongo, was 11 lbs. 8 ozs. 16 dwts.; and Bananal, 8 lbs. 0 oz. 14 dwts.=19 lbs. 4 ozs. 10 dwts. Total raised from 1st July, 99 lbs. 8 ozs. 18 dwts.

The St. John del Rey advices are to the 28th Nov. The gold extracted to the 8th Nov. was 6462 oits., and to the 18th Nov., 13,971 oits. Although the stone was abundant, the quality had not been so good; still a favourable change was anticipated. A remittance of 45,573 oits., or about 437¾ lbs. of amalgamated gold had been sent to Rio for shipment home.

The usual weekly report from the Linares Silver-Lead Mines has been received. The operations continuing satisfactory.

MINING IN SPAIN.—A decree has been issued by the Spanish Government, that henceforth all the mines of the country shall be placed under the direction of the Minister of Commerce and Public Works, the duty to be paid into the Treasury. The duty to be 1 real per square yard of surface annually, and a royalty of 5 per cent. on the price of the ore at which it is sold in the market. Experienced engineers have been appointed as inspectors of mines, with a view to prevent accidents, and establish the working of the mines on the most scientific and economic basis, and that the authorities may always know the value of the produce.

The following arrivals of specie have taken place since our last:—The Peninsular and Oriental steam-ship, *Montrose*, brought two packages of specie. The steam-ship, *Ripon*, arrived on the 26th, with the heavy portion of the China, East India, and Mediterranean mails, bringing on freight 38 packages of specie —value, 15,000*l.* Her Majesty's packet, *Linnet*, arrived at Falmouth on the the 25th January with the Brazilian mail, having on freight about 20,000*l.* in gold and diamonds.

PRICES OF MINING SHARES.

BRITISH MINES.

Shares.	Company.	Paid.	Price.
1000	Abergwessin	9	6
1024	Alfred Consols	8½	20 16
1024	Ashburton United Mines	8½	12
1624	Balleswiddon	9	16
128	Balnoon Consols	42½	50
905	Barristown	5½	4 5
3650	Bawden	¼	½ ¾
6000	Bealbury	1	1
4000	Bedford	2½	5 5½ ¾
1280	Birch Tor & Vitifer	10½	6½ 7
5000	Black Craig & Craigton	3	5
4000	Blaenavon	50	10
5000	Blisland Consols	1	4½
1024	Bodmin Consols	5	7
5000	Bodmin Moor Consols	1	4
100	Botallack	182	30
120	Brewer	5	2½
256	Brimpts Tin	2½	2½
10000	British Iron, New, regis.	12	8
—	Ditto ditto, scrip	10	10
2400	Bryn-Arian	2	6 6½
107	Budnick Consols	52½	12
1000	Callington	22	5
1000	Camborne Consols	7	7½
20000	Cameron's Steam Coal	7	1
256	Caradon Mines	22½	10
256	Caradon United	24	5 8
256	Caradon Wh. Hooper	21	4½
1000	Carn Brea	15	115
1000	Carthew Consols	1½	7
3114	Charlestown	220	—
500	Comblawn	5½	4½
128	Comfort	45	65 68
256	Condurrow	20	90 95
2560	Cook's Kitchen	14	8 8½
1000	Coombe Valley Quarry	5	5
1000	Copper Bottom	1½	6½
900	Court Grange	7	10
212	Craddock Moor	23½	5
128	Creeg Braws	120	30
500	Cubert Mine	12½	—
1000	Cwm Erfin	3½	1¾ 2
1000	Daren	2	3 3½
7100	Derwent	8½	5
502	Devon & Courtenay Con.	11½	2½ 2¾
1024	Devon Great Consols	1	200
1000	Dhurode	2	5
182	Dolcoath	30	17
2560	Drake Walls	5½	3
10000	Durham County Coal	45	9
3000	Dyfngwm	10	15
512	East Alvenney	5½	6
2500	East Birch Tor	3	3
1024	East Buller	1	4¾ 5
112	East Caradon	47	47
2048	East Crowndale	7½	1½
128	East Pool	15	60
9000	East Tamar Consols	¾	1½ 1¾
258	East Tolgus	1½	4½
94	East Wheal Crofty	125	65
128	East Wheal Rose	50	580 600
—	East of Scotland Iron Co.	5	1½
123	East Wheal Seton	14	10
1280	Esgair Llee	2	3
248	Exmoor Wh. Eliza	11	10 12
494	Fowey Consols	40	45
1024	Freidd Llwydd Mines	1½	3½
4000	Gen. Mining Co. for Irel.	1½	1½
2500	Georgia Consols (Tin)	½	¾
256	Gonamena	44½	16
128	Goonvrea	4	2
256	Grambler & St. Aubyn	80	6
96	Great Consols	1000	300
512	Gt. Wh. Rough Tor Con.	24½	18 20
6000	Growa Slate Company	5	5
256	Hawkmoor	12½	70
6000	Heignston Down Con.	1½	2
1500	Hennock Silver-Lead	18s	6
4500	Hennock Iron & Tin	21s	21s
512	Herodsfoot	16	12½ 15
10000	Hibernian	12½	1½
1000	Holmbush	22	13
1024	Kingsett and Bedford	1½	3¾ 4½
787	Kirkcudbrightshire	8½	3¾ 4
2048	Lamherooe Wh. Maria	9	4
252	Lanarth Consols	—	5
256	Lelant Consols	47	25 26
160	Levant	—	160
1000	Lewis	17	9½ 10
1000	Llwynmalees	8½	13 15
3600	Llynvi Iron	50	50
253	Lostwithiel Consols	23	10
6000	Marke Valley	10	¾ 1
5000	Mendip Hills	3½	3 3½
128	Metha	34	—
20000	Mining Co. of Ireland	7	5½ 5¾
256	New East Crowndale	3¾	4½ 5
100	North Pool	45	510
140	North Roskear	5½	150
262	North Wh. Leisure	1½	2
15000	Northern Coal Co.	23	2
128	Par Consols	55¾	650
1248	Pengelly Tin	1	1
8000	Pennant & Craigwen	2½	2
1024	Penzance Consols	22s 3d.	5
512	Plymouth Wh. Yeoland	6½	6
200	Polsaith Consols	5½	4½
2500	Rhoswiddol & Bacheiddon	10	10
10000	Rhymney Iron	50	13
10000	Ditto New	7	6¾
1000	Rosewall Hill	1	5
256	Rosewarva Mines	—	12

BRITISH MINES—*continued.*

Shares.	Company.	Paid.	Price.
2048	Runnaford Coombe Tin	1½	4
9080	South Tamar	½	3 3½
128	South Caradon	5	200
1100	South Dolcoath	5	¾ 1
256	Sth. Friendsh. Wh. Ann	30	28 30
256	South Molton	7	12 13
300	South Speed	5	5
256	South Tolgus	16	130 2½ 50
256	South Trelawny	28½	5
2000	South Wales Mining Co.	1	1
128	South Wheal Basset	20½	450
124	South Wh. Frances	160	305
256	South Wh. Josiah	2	3½ 4
1000	South Wh. Maria	2½	1½
10000	Southern & Western, Irish	2½	4
280	Spearne Moor	30	40
94	St. Ives Consols	—	80
128	St. Michael Penkivel	5	10½
999	St. Minver Consols	1	6
1000	Stray Park	45	21 22½
9600	Tamar Consols	3	7½ 8
10240	Tavistock Consols	¼	½ ¾
1024	Tavy Consols	6½	1½
6000	Tincroft	7	12½ 13
58	Tokenbury	170	10
240	Tolcarne	8	15
256	Tregorden	3½	7 8
256	Trehane	1½	31 32
5000	Treleigh Consols	6	2¾ 3
2000	Trenance	3	—
1500	Trenault Lime Quarries	2	3
96	Tresavean	10	95
120	Trethellan	5	21
120	Treviskey and Barrier	130	155 160
512	Trethevy Copper	1	1
1000	Tyllwyd	2	2½
200	United Mines	50	160
256	Wellington Mines	25	15
128	West Buller	10	450
256	West Caradon	20	95 100
512	West Fowey Consols	40	12
—	West Par Consols	2½	—
2500	West Polgooth	5	5
512	West Providence	9	15 16
200	West Seton	45	185 190
120	West Trethellan	5	5
512	West Wheal Frances	1½	3½
256	West Wh. Friendship	9	8
3845	West Wheal Jewel	12	2½ 2½ 3
256	West Wheal Tolgus	80	6
256	West Wheal Treasury	27½	15
1024	Whiddon Mines	4½	2
5200	Wicklow Copper	5	12¾ 13½
107	Wheal Adams	130	150
1000	Wheal Agar	—	6
256	Wheal Albert	10	1
240	Wheal Anderton	28	15 20
128	Wheal Ann	—	50½
512	Wheal Anna Maria	7	4
120	Wheal Bal	5½	10
256	Wheal Benny	14½	2
1021	Wheal Bray	11½	10
232½	Wheal Calstock	9	20 25
268	Wheal Courtenay	20	23
182	Wheal Elizabeth	9	12 14
256	Wheal Fortescue	15	12 13
100	Wheal Friendly	70	66½
388	Wheal Franco	27	11 12
100	Wheal Henry	—	18
1024	Wheal Lawrence	3½	3½
112	Wheal Margaret	79	220
512	Wheal Mary Ann	5	32 33
5000	Wheal May	½	½
360	Wheal Oak	25½	5
3000	Wheal Penhale	1½	6
210	Wheal Prospect	4	7
120	Wheal Reeth	41	150
128	Wheal Rose	60	3
198	Wheal Seton	107	250
180	Wheal Sisters	35¾	5
512	Wheal Sophia	5½	5
128	Wheal Spearne	10	60
128	Wheal St. Ann	30	35
550	Wheal Trescoll	10½	19 20
260	Wheal Trelawny	7¾	78 85
256	Wh. Tremaine (St. Ervan)	9½	2½
1024	Wheal Tremayne	9½	7½ 7¾
267	Wheal Tryphena	40	30
1000	Wheal Vincent	2¾	8
128	Wheal Vlow (Perranz.)	1½	1½
184	Wheal Vyvyan	—	60

FOREIGN MINES.

Shares.	Company.	Paid.	Price.
5000	Alten Mining Company	14½	2½ 2¾
15000	Asturian Mining Co.	15	2½
20000	Australian	4	5 5½
6000	Barossa Range	1¾	1¾ ¾
10000	Brazilian Imperial	23	4 4½
12000	Cobre Copper Co.	40	30
10000	Copiapo Mining Co.	14	4 3½
20000	General Mining Ass'n.	20	13
4000	Guadalcanal	5	2½
2000	Ditto Preferential	2½	2½ 2½
5000	Kinzigthal Mining Ass.	2	1½
5051	Mexican Company	59½	—
20000	Mexican & South Amer.	8	1 1½
5000	National Brazilian	30	3½ 4
104000	N. Brit. Australasian	1	¾
7000	Royal Santiago	10	6 6½
11000	St. John del Rey	15	13½
43174	United Mexican ...Av.	28½	5½ 5¾
10,000	Worthing (S. A.)	2	2½

*** We should feel greatly obliged by agents, or others interested, furnishing us with such corrections for our Share List as we may not have received through our usual channels of information—our object being, to present as accurate a list of prices as can be obtained—to procure which, we solicit the aid of correspondents in general.*

RAILWAY TRAFFIC RETURNS.

Names of Railways.	Length. 1850	Length. 1849	Present actual cost.	Price p. share	Div. 1849	Traffic Returns. 1850	Traffic Returns. 1849
Aberdeen	57	16	1,000,547	12½ 12½	—	£ 608	£399
Belfast and Ballymena	37¾	37¾	514,968	18½	5*	415	355
Birkenhead, Lancashire, & Chesh.	19	19	1,088,804	37	5†	732	—
Bolton, Blackburn, & West Yorksh.	14	—	786,384	5½	—	420	326
Bristol and Exeter	85½	75½	2,660,490	64½ 65	—	3246	—
Caledonian	160	141	5,149.320	12¾	3	5246	3488
Chester and Holyhead	100	84	3,358,217	10	4	1139	1097
Dublin and Drogheda	35½	35½	778,565	27	—	713	645
Dublin and Kingstown	7¾	7¾	395,915	—	—	583	647
Dundee, Perth, & Aberdeen Junc.	50	47½	544,554	13½	6½	928	890
East Anglian (Lynn to Ely)	91½	67	1,247,446	1¾	—	626	683
East Lancashire	75½	24	2,628,519	10½	5	2589	1750
Eastern Counties and Norfolk	322	295	12,027,069	7½ 7½	—	13532	13288
Eastern Union	95	50½	1,782,703	4½	—	1604	1195
Edinburgh and Glasgow	57½	52½	2,923,199	27½	6	2460	2615
Edinburgh and Northern	78	34	2,241,276	7½	2	1754	1429
Glasgow, Paisley, and Ayr	104	74	2,574,330	52	3	2408	2036
Glasgow, Paisley, & Greenock	23	23	852,846	12¾	2	810	771
Gt. Northern & East Lincolnshire	143	—	5,138,756	6⅞	5†	2398	1601
Gt. Southern & Western, Ireland	188½	110½	3,552,589	30½	6†	2929	2929
Great Western	230½	206½	11,867,042	68 68½	6½	16434	16674
Lancaster and Carlisle	90	70	1,476,102	51½	4½	3029	1731
Lancashire and Yorkshire	220	127½	10,063,862	58	5¾	11419	9930
Liverpool, Crosby, & Southport	13	—	84,455	5¾	—	71	65
London and North Western	478	428	26,251,635	117	7	39347	35777
London and Blackwall	5½	4	1,299,675	4	1-12	545	581
London, Brighton, & South Coast	170	162½	6,502,600	85	2½	6344	6709
London and South-Western	221	194	7,874,259	68	5½	7090	8195
Londonderry and Enniskillen	14½	14½	185,739	16	—	114	—
Manchester, Sheffield, & Lincolnsh.	157½	94½	6,598,260	18½	5	4411	2707
Midland Company	483	423½	15,133,779	44	5½†	19215	18611
Midland Great Western (Irish)	50	36½	725,332	24½	4†	1131	974
Monklands	36	—	486,245	—	6	—	—
North British	135	83	3,649,055	11½	4½	2838	1956
Scottish Central	45½	—	1,364,228	15½	7	880	749
Shrewsbury and Chester	48	23	969,618	12½	5	1292	1235
Shropshire Union	30	—	—	3½	—	348	—
South Devon	57¾	29	1,909,232	5	5	1357	1200
South-Eastern	189½	165½	8,666,007	20	5½	7731	6636
Taff Vale	38	40	879,110	—	7½	1672	1782
Ulster	36	36	723,829	45¾	—	614	614
Waterford and Limerick	25	—	512,894	—	—	—	—
West Cornwall	13	—	—	—	—	285	235
Whitehaven Junction	12	12	150,879	9½	3	162	168
York, Newcastle, & Berwick	290½	242½	6,827,849	16¾	7	10374	12163
York and North Midland	260	234	4,983,618	18	7	5825	5717

CURRENT PRICE OF GOLD AND SILVER.

Foreign gold, in bars ....per oz. £3 17 9	New dollars .... per oz. £0 4 10½
" Portugal pieces.... 0 0 0	Silver in bars (standard) 0 4 11¾

JOINT-STOCK BANKS.

Shares.	Companies.	Paid.	Div. p. cent.	Price.
22,500	Australasia	£40	£3	£22
20,000	British North American	50	6	41
20,000	Colonial	25	5	7¾
20,000	Commercial of London	20	6	22½
60,000	London Joint-Stock	10	6	17½ 18
40,000	London and Westminster	20	6	26½
10,000	National Provincial of England	35	5	37
20,000	National of Ireland	22½	6	18½
20,000	Provincial of Ireland	25	8	42½ 42¾
10,000	South Australia	22½	—	17¾ 18
20,000	Union of Australia	25	6	29
60,000	Union of London	10	6	13

LEAD ORES.

TICKETINGS FOR ABOUT 90 TONS FOXDALE LEAD ORE.

Douglas, Isle of Man, January 30.

Bidders.	*Price per Ton.*
Walker, Parker, and Co.—Dee Bank (purchasers)	£12 5 0
J. T. Treffry—Fowey Consols Mine	9 6 0
Combmartin Smelting Company—Barnstaple	9 8 6
Tamar Smelting Company—Beeralston	10 8 0
T. Somers—Bristol	9 9 0
Sims, Willyams, Nevill, and Co.—Llanelly	11 17 6
Mather and Co.—Bagilit	11 7 0
Newton, Keates, and Co.—Bagilit	12 2 6
Pontifex and Wood—Newcastle	10 12 0

Sold at Liskeard.

Mine.	*Tons.*	*Price per Ton.*	*Purchaser.*
Wheal Mary Ann	74	£17 8 6	Sims and Co.

Sold at the Mine.

Mine.	*Tons.*	*Price per Ton.*	*Purchaser.*
East Wheal Rose	10	£17 4 6	Tamar Company.
ditto	13	15 16 6	ditto
ditto	11	15 19 0	Sims & Co.

Sold in London.

Mine.	*Tons.*	*Price per Ton.*	*Purchaser.*
Wheal Adams	50	£10 2 6	R. Michell & Son.

BLACK TIN.

Mine.	*Tons.*	*Price.*	*Purchasers.*
Great Polgooth	9	£46 15 0	J. H. Enthoven & Co,
ditto	9	46 15 0	Daubuz.
ditto	9	46 15 0	Bissoe Company.
ditto	8	46 15 0	Trethellan Company.
ditto	8	46 15 0	Calenick Company.
ditto	2	42 0 0	Daubuz.

COPPER ORES.

Sampled Jan. 16, and Sold at Andrew's Hotel, Redruth, Jan. 31.

Mines.	*Tons.*	*Price.*	*Mines.*	*Tons.*	*Price.*
North Pool	99	£6 13 6	Tincroft	55	£2 19 0
ditto	81	4 18 0	ditto	54	1 19 6
ditto	80	6 5 0	ditto	53	3 18 6
ditto	76	5 6 0	ditto	52	2 0 6
ditto	74	6 13 0	ditto	51	4 3 0
ditto	70	3 2 6	South Wh. Basset	102	8 8 6
ditto	50	3 7 6	ditto	80	3 5 0
Wh. Seton	77	4 12 0	ditto	69	4 12 6
ditto	71	4 13 6	ditto	52	6 11 6
ditto	70	4 4 0	ditto	40	19 9 6
ditto	68	5 17 6	ditto	37	19 5 6
ditto	63	2 6 6	Fowey Consols	83	7 3 6
ditto	60	5 19 0	ditto	82	6 8 6
ditto	47	6 9 6	ditto	75	6 19 0
Pendarves	61	4 16 0	Condurrow	59	5 1 6
Camborne Vean	95	4 8 0	ditto	50	3 9 0
ditto	86	6 16 6	ditto	46	9 11 6
ditto	85	9 1 6	ditto	38	7 18 6
ditto	70	2 14 6	ditto	15	3 0 0
ditto	64	4 10 6	Dolcoath	61	6 11 0
ditto	48	2 5 0	ditto	50	3 6 0
Wh. Francis	54	6 2 0	ditto	46	4 2 6
East Wh. Crofty	104	5 15 6	ditto	36	9 14 6
ditto	85	6 1 6	East Pool	67	1 16 6
ditto	59	6 2 0	ditto	47	7 11 6
ditto	50	4 3 6	ditto	39	3 16 6
ditto	47	0 6 6	South Wh. Frances	69	8 14 6
ditto	37	5 8 6	ditto	48	8 14 6
ditto	32	2 8 0	ditto	24	9 2 6
Dudnance	65	5 4 6	North Roskear	96	6 17 0
Longclose	21	5 15 0	Gramb. & St. Aub.	40	3 16 6
Tincroft	71	2 14 6	Wh. Mary Consols	33	2 1 0
ditto	66	4 7 0	Copper Bottom	26	2 8 6
ditto	58	3 18 6	Creeg Braws	18	4 14 0

TOTAL PRODUCE.

Mines	Tons	Amount	Mines	Tons	Amount
North Pool	530	£2840 2 6	Fowey Consols	240	£1643 12 6
Wh. Seton, Pendarves	517	2480 4 6	Condurrow	208	1258 10 6
Camborne Vean, Wh. Francis	502	2694 1 6	Dolcoath	196	1124 1 0
East Wh. Crofty, Dudnance, Longclose	500	2438 16 0	East Pool	153	627 9 6
			South Wh. Frances	141	1239 16 6
			North Roskear	96	657 12 0
			Gramb. & St. Aub.	40	153 0 0
			Wh. Mary Consols.	33	67 13 0
Tincroft	460	1502 2 0	Copper Bottom	26	63 1 0
South Wh. Basset.	380	3272 11 0	Creeg Braws	18	84 12 0

Average Standard..........£114 3 0 | Average Produce.............. 7½

Average Price per ton............ £5 9 0

Quantity of Ore ....4040 tons | Quantity of Fine Copper, 291 tons 5 cwts.

Amount of Money..................£22,147 5 6

LAST SALE.—Average Standard......£112 1 0.—Average Produce...... 7¾

Standard of corresponding sale last month, 119*l.* 5s.—Produce, 7½.

COMPANIES BY WHOM THE ORES WERE PURCHASED.

	Tons.	Amount.
Mines Royal	265	£1581 4 10
Vivian and Sons	1286	5495 8 10
Freeman and Co.	540	2559 19 0
Sims, Willyams, and Co.	407	2457 8 6
Williams, Foster, and Co.	1126	7718 2 4
Schneider and Co.	416	2335 2 0
Total tons	4040	£22,147 5 6

Copper ores for sale on Thursday next, at Andrew's Hotel, Redruth.—Mines and Parcels.—Carn Brea 728—Tywarnhayle 457—Par Consols 253—Levant 200—Wheal Buller 159—West Wheal Treasury 120—Wellington Mines 113—Wheal Mary 101—West Wheal Seton 82—Wheal Agar 44—South Wheal Fortune 40—Wheal Tremayne 35—Alfred Consols 32—Michell's ore 22—Wheal Prosper 18—Trenow Consols 4.—Total, 2408 tons.

NO SALE on Thursday week, Feb. 14.

COPPER ORES

Sampled Jan. 9, and Sold at Swansea, Jan. 31, 1850.

Mines.	Tons.	Prod.	Price.	Mines.	Tons.	Prod.	Price.
Knockmahon	163	8½	£ 6 18 0	Knockmahon	23	9½	£ 7 4 0
ditto	92	9½	7 15 6	Berehaven	122	10	8 7 6
ditto	86	8	6 9 0	ditto	119	10½	8 10 6
ditto	78	8½	6 12 0	ditto	100	10½	8 10 6
ditto	72	7½	5 15 0	ditto	98	10	8 7 0
ditto	66	6½	5 2 6	Ballymurtagh	58	5½	4 7 6
ditto	53	6½	5 7 6	ditto	36	4½	3 15 0
ditto	47	9½	7 14 0				

TOTAL PRODUCE.

Knockmahon ...... 620.... £4060 2 6 | Berehaven .... 439.... £3707 0 6

Ballymurtagh ..... 94.... £ 388 15 0

COMPANIES BY WHOM THE ORES WERE PURCHASED.

	Tons	Amount
English Copper Company	250	£1821 11 0
Grenfell and Sons	200	1536 11 0
Sims, Willyams, and Co.	72	414 0 0
Vivian and Sons	225	1400 8 0
Williams, Foster, and Co.	189	1150 12 6
Mason and Elkington	217	1832 15 6
Total tons	1153	£8155 18 0

Copper ores for sale Feb. 21.—Berehaven 116, ditto 114, ditto 102, ditto 100, ditto 98, ditto 79.—Cobre 110, ditto 101, ditto 77, ditto 67, ditto 63, ditto 58.—Santiago 68, ditto 62, ditto 58, ditto 57, ditto 43, ditto 38, ditto 9, ditto 8, ditto 6.—Cuba 65, ditto 55, ditto 48.—Guildford Slag 60.—Total quantity of ore to be sold, 1662 tons.

MINING APPOINTMENTS FOR FEBRUARY.

2. Spearne Consols—setting.
8. Penzance Consols—pay and setting.
9. Spearne Consols—pay.
11. Penzance Consols—account.
22. Balleswidden—pay and setting.
27. Balleswidden and Spearne Consols—accounts.

NOTICES TO CORRESPONDENTS—(*Continued*).

THE BRITANNIA BRIDGE.—We have already so frequently adverted to the dissension between the *friends* of Mr. Robert Stephenson and Mr. Fairbairn, that we think our readers, as well as ourselves, must be heartily tired of it. Mr. Fairbairn should be content with the credit fairly awarded him by Mr. Stephenson—of having, by his great experience and high scientific attainments, ably assisted in maturing the plans, for which purpose his engagement was suggested. There is enough of honour for both. We have no wish to publish further communications on the subject.

We are compelled to postpone the continuation of Mr. Hopkins's series of papers on the Gold-Washing Districts; Mr. Motley, on Patent Tracks for Turnpike-roads, &c., &c.

NOTICES TO CORRESPONDENTS.

*** We must impress upon our correspondents, the necessity of invariably furnishing us with their names and addresses—not that their communications should, consequently, be noticed, but as an earnest to us of their good faith.

Combustion of Fire-damp by Galvanism.—In our last Number we inserted a communication from Mr. Louis Jullion, of Wolverhampton, in which he claims the prior right to the idea of rendering collieries safe by galvanic action. A letter from him has since appeared in the *Wolverhampton Chronicle*, in which he describes his endeavours to rouse coalowners to a sense of the duty they owe their *employés*, to use every necessary precaution of their lives, in vain. He then enters at length into the nature of fire-damp, which would be superfluous here. The principle proposed by the writer is, to carry copper wires throughout the various workings in small tubes connected with a galvanic battery, the wire being separated at the most convenient spots for the purpose, and connected with a small ball of spongy platinum. By completing the circuit, the platinum becomes of a white heat, and fires the hydrogen; and this he proposes should be performed every morning before the men descend, and whenever an unusual collection of gas should appear—thus keeping the mine clear.

"A Shareholder" (St. James's).—Apply first to the secretary for the information—on his refusal, we will publish the letter.

W. Jones (Merthyr).—Address, "Chillington Iron-works, Staffordshire."

"E. W." (Oswestry).—The oxide of zinc can be obtained of Mr. Button, chemist, Holborn

"An Old Mexican" (City) should consult some broker—we never give advice as to the purchase or disposal of shares.

W. Wilson (Torquay).—We have not heard whether any progress has been made in the air-syphon, which was represented to be such a wonderful discovery, and was to effect such a revolution in colliery ventilation. It appears to us that every mine, when the upcast shaft is carried to a greater height than the downcast, becomes a gigantic inverted syphon; the effect is known. The same of a room: a current of air passing from the upper part of a window to the floor represents the short leg; from the floor up the chimney the longer one. The first part of Dr. Percy's paper on the Extraction of Gold appeared in last Saturday's Journal, p. 45; the conclusion in our present Number.

Runnaford Coombe Tin Mine.—"S. P." (City): We will forward a letter to the party from whom we received the correction for our Share List;—or apply to some broker (the addresses of several appear in our first page) who can, perhaps, give you the information required.

"T. W." (Richmond).—Had our correspondent been content in submitting his views to us in the ordinary business way, the subject would have received proper attention; but, having proffered a bribe "for our advocacy," the matter is placed entirely "out of court."

"A Subscriber" (Salford).—Our correspondent inquires where *charcoal pig-iron* can be obtained, and at what price?—We have made every inquiry among the London brokers; but can get no satisfactory information on the subject. It appears generally a very scarce article in the market; but if any ironmasters are still in the habit of smelting small quantities of superior iron by charcoal, they will probably inform our correspondent through our columns, as it is wanted for a particular purpose.

Map of Central America.—Since writing the notice which appeared in the Journal of last week, we have received a copy of the map issued by Mr. Wyld, showing the different lines of Atlantic and Pacific communication, and which we find bears evidence of the bestowal of more care and skill than we were led to suppose from the representations of our correspondent;—yet, as Mr. Hopkins is now having his original plans engraved (and which are, indeed, nearly ready for publication), there can be no question of their possessing the greatest claims on the public, from decided superiority, both for correctness and beauty, as compared with the copy prepared by Mr. Wyld.

"A. B." (Carlisle).—Apply to Mr. Campin, of the Patent Office, No. 210, Strand, who will forward an official circular of information, with scale of charges, &c.

"R. B." (Lincoln).—Sir James Anderson, and the parties who joined him some months since, in taking out a patent for the steam-carriage, and several descriptions of roads, are still acting in company. The steam locomotive for common roads is being constructed and making progress; and although we have seen the drawings, and a portion of the models, we defer any opinion of its capabilities until we see it complete.

Mr. Bagge's communications with reference to the subjects of "Hot Air *v.* Steam," and "Accidents in Coal Mines," arrived too late for insertion in this week's Journal. They shall appear without fail in our next impression.

Railway Signals.—Mr. J. Banfield, of Birmingham, referring to the late accident on the East Lancashire Railway, and the great importance of a signal being used by which means the guard of a train (and passengers if necessary) can communicate with the engine-driver, writes:—"I beg to inform railway companies and the public, that about three years ago I obtained a patent for a signal, the object of which is to enable the guard and passengers to communicate instantaneously with the engine-driver. I then wrote to the directors of the London and North-Western Company, offering them the free use of my inventions, and to my great surprise I received a letter from the secretary to say:—'The means which at present exist for communication between the guard of a train and the engine-driver are found sufficient for the purpose.' How far this is correct I leave the public to judge; but I think we have almost daily proofs to the contrary—the break being the only means of communication used between the guard and engine-driver. I now beg to offer the free use of my patent to any railway company who think such signal desirable, and feel anxious for the safety of their passengers. My signal was fully tested at Bromsgrove, under the superintendence of Mr. M'Connell, who then stated, 'it was the best and most efficient signal he had ever seen.'"

"M." (Cork).—We at all times feel obliged by having newspapers forwarded us, which may contain information interesting to our readers.

Annales des Chemins de Fer des Travaux Publics et des Mines.—The two first numbers of this publication, newly started in Paris, with a similar intent to our own—the encouragement of mining industry and public works—have been received. The work is well got up, and contains several interesting articles on railroads and scientific subjects, an historical account of mining in France, together with statistical accounts and time-tables of the several lines diverging from Paris, and cannot fail to be of considerable utility to those devoted to mining and engineering pursuits in that country.

"A Shareholder" (Redruth).—Send us the particulars, and we will publish them.

*** We should feel obliged to all pursers, captains, or adventurers, to forward particulars of meetings, &c., of the mines with which they may be connected, on the earliest opportunity, that they may be published in the Journal.

*** Having experienced considerable difficulty in procuring back Numbers, to complet sets of last year's volume, we hope those of our subscribers who intend binding the present year's Journal will be careful in preserving the Numbers as issued, or in obtaining such extra copies as may be required, as soon after publication as possible. The Title and Index was published on the 29th December, 1849.

*** It is particularly requested that all communications may be addressed—

To the Editor,
Mining Journal Office,
26, Fleet-street, London.

And Post-office orders made payable to Wm. Salmon Mansell, as acting for the proprietors.

THE MINING JOURNAL
Railway and Commercial Gazette.

LONDON, FEBRUARY 2, 1850.

The Mining Journal is published at about Eleven o'clock on Saturday morning, at the office, 26, Fleet-street, and can be obtained, before Twelve, of all news agents, at the Royal Exchange, and other parts of London.

The death of Mr. J. T. Treffry is one of the severest blows which Cornwall has ever felt. A man who spent his whole income, vast as it was, in giving employment to those who sought for means of subsistence—is a loss that the county cannot afford, while it is one of general lament. That Mr. Treffry was a man respected by all who knew him, revered even by those who were dependent on him, is too well known and recognised to require comment. As the supporter of the mining interests of Great Britain, no man ever took a more manly or straightforward course, and many were the sacrifices made by him to uphold the interests of the county with which he was identified. It would be futile to refer to his position as one of the largest adventurers—ever holding a majority in the Fowey and Par Consols—or to the gigantic undertakings of the railways which emanated with him, as also the smelting-works and breakwater at Par. His establishment—more the palace than the mansion—on which he expended upwards of 120,000*l.*, in which he was honoured by the presence of her Majesty, is in itself a monument of his liberality, and his desire to foster others. Without a scion or a single soul to whom he could bequeath his vast property, he, while possessed of tens, or even hundreds, of thousands, was even, comparatively, wanting the pounds. The death of Mr. Treffry has left such a lapse as cannot be filled by any one of the present race; for how ignobly do the smelters and miners further west appear when compared to him. He was indeed a host in himself, and never did man more deserve regard, or more anxious was he to do good unto others, as good should be done unto him. We shall next week take a review of the services rendered by Mr. Treffry, and the main features of his life, feeling well assured that we cannot put forward a more bright example; nor can we illustrate charity, combined with our industrial resources, in a manner which can be more acceptable to our readers.

In consequence of the numerous imputations to which the executive of the St. John del Rey Mining Company have been subjected for many months past, as to the management of its affairs in the Brazils—the improper and destructive working of the mines, in order to make a show of present high production and dividends, to the utter future ruin of the concern; and more especially as to the cruel and fatal treatment to which, with the connivance and consent of the directors, the slave population were subjected—a circular has just been issued from the London offices, containing extracts of communication with the superintendent and managing captains, for the purpose of giving a decided and complete answer to the imputations, stated by them to be most unjust.

Before reverting to the document in question, we would just remark, that much stress is laid therein on the fact, that these so called "unjust imputations" have been made public through the medium of the Mining Journal. To this we unhesitatingly plead, that whatever statements, inculpatory of the officials of the company, have appeared in our columns, they have been received from responsible correspondents, on whom we could so far rely as to make it appear our duty, as public journalists, to give them to the world; they have at least borne such appearance of fact as to lie open to explanation. Such explanations on the part of the directors' supporters have also from time to time been willingly and unconditionally inserted; our only object and endeavours being to arrive at the truth, and to promote, to the best of our ability, the interests of all legitimate mining adventures—to the advancement of which the Journal was first established, and to which its columns shall ever be devoted, whether capital be invested at home or abroad, always feeling the most lively satisfaction when undertakings are so conducted as to avoid every cause of contention, which, under all circumstances, is more or less productive of serious evils, and depreciation in the value of the property.

One principal circumstance on which the assertion that the borers were overworked was founded, was the fact that they were found to be breaking a considerable larger quantity of ore per man per month than they had formerly done. It was stated, that the company having increased its stamping power, in order to meet the increased supply of ore which had been opened out, the negroes had been unduly pressed to raise ore to supply the stamping mills, and that the sickness which had been prevailing amongst them was to be attributed to this cause. As a refutation to these charges, the following letter from Mr. Keogh, the superintendent, to the directors, dated Morro Velho, Sept. 6, 1849, is published in the circular:

The *Mining Journal* of June 30, which arrived here a few days ago, contained one of those unkind attacks which now so frequently appear in that paper, against myself personally, and against my administration of your affairs here. In this attack, the writer points out, with apparent truth, that the number of *tons* broken in the mine by each borer, in 1848, having averaged 26½ tons each borer, while in 1847 it averaged only 19¼ tons; he argues that to this increase of labour imposed on the borers must be attributed the increased mortality in 1848 over 1847. In answer to this, I now enclose you a report made to me by Capt. Treloar, wherein he shows that the number of *palmas* (8 inches) bored by each man (and that is the real measure of his labour) has never varied in the least since 1844; while the number of holes bored by each was *less* in 1848 than in 1847. The writer of the attack in the *Mining Journal* having likewise chosen to find fault with the breadth or width of our workings in the mine, Capt. Treloar goes fully into the comparative results of the two systems—say, of the broad gauge and of the narrow gauge—showing that each borer, working on the wide gauge, averaged 4*l.* 8*s.* 3*d.* per month, or, say, about 50*l.* per annum greater profit, than if he had worked on the narrow gauge.

This communication of Capt. Treloar, which is too long for insertion, goes to explain the apparent descrepancies between the charges made and the real facts. Capt. Treloar states that the task per day for each pair of borers, when he arrived at the establishment in 1845, was two holes, of 3½ *palmas* each, if on the stopes, and one hole of 4 or 5 palmas, if on a stage at the side; he considered the arrangement good, and so it has remained to this day. As a proof that the labour of the borers has not been increased, he states that in 1845 each borer averaged per month 24·66 holes; 1846, 23·70; 1847, 24·22; 1848, 24·13; 1849, three months end of March, 21·04 holes. Capt. Treloar attributes the increase of ore per borer during 1848, as compared with 1847, to three causes—little or no interference with the miners in planting holes; the quantity of ore raised was taken from the reduction accounts, which were imperfect; and from the fact that many parts of the excavation, which were narrow in 1847, were *widened* in 1848, enabling, of course, more stone to be quarried from a hard compact rock in a wide excavation than from a narrow one. He shows that too much importance has been attached to the "standard," which means the number of oitavas of gold contained in a ton of ore. A change in the standard of ore stamped has been considered to indicate change in the quality of the lode; when, generally speaking, such change had little or nothing to do with the quality of the lode, but was the result of the mode of working it, or fluctuation in the quantity stamped for a ton, or rejecting the inferior ore to a greater extent some times than at others. The containing rock (killas) contiguous to, and at a little distance from the lode, is sufficiently auriferous in most places to afford 1 oitava of gold per ton (some of it has yielded 1¾ per ton), and by breaking a portion of it with the lode, it facilitates the quarrying of the lode. In 1848 we quarried much more of it than in 1847, and although this increase *lowered the standard, it increased the produce and the profit.*

Capt. Treloar then proceeds to explain by figures the actual proceeds of the two systems, which give an extra profit of 4*l.* 8*s.* 3*d.* per borer per month in favour of the low standard and wide workings. He concludes with a reference to a synopsis, forwarded in May last to the directors, relative to the advantages of wide quarrying. He assures the shareholders that Morro Velho lode never presented a more exhilirating aspect than at present, and that the working order of the mine is rapidly becoming all that can be reasonably desired, and prophecies that if a person be at the head of the establishment who shall be more solicitous for *a low standard and high produce than for a high standard and low produce*, Morro Velho will, with care, go on for many, many years, affording the most satisfactory results. The remainder of this circular, which fills 53 octavo pages, consists of the instructions given by the directors to the superintendent and officers as to the treatment of the negroes, which certainly savour of the most fervent aspirations of humanity, and reports from them as to the labour, food, recreation, happiness, and present general condition of the black population, which are highly interesting; and however repulsive slavery, as a principle, may be to Englishmen, it would appear many of our unfortunate countrymen, as far as regards food, work, and clothing, would be happy to be in an equally comfortable plight.

One circumstance which has been alleged as a cause of great mortality—the bad air of the mines, principally owing to the presence of arsenic in the lodes—is most emphatically denied. The veinstone is stated to be composed of quartz and auriferous, not *arsenical*, iron pyrites; and in analyses made on the ore in London, not a trace of arsenic could be found, and Mr. Keogh's predecessor could by the closest chemical tests only discover a trace. A want of air is stated never to have been felt; and if ventilation had been required, it was now effected by the communication between the Bahu and Cachoeira Mines. The excavations do not, like the Cornish mines, consist of a labyrinth of drifts and galleries, but are, in fact, more like a huge underground quarry.

A correspondent of the *West Briton*, signing himself "A Miner," complains of the great want of education among the immense mining population of the county of Cornwall. He says—"It is deplorable to observe the great numbers of uneducated and ignorant children scouring about the lanes. In general these are the children of miners; and though it is true there are very many Sunday schools scattered about, which do immense good in removing the huge mass of ignorance about us, yet we cannot close our eyes to the fact that the great body of the rising generation are illiterate and untaught." He then alludes to the immense sums of money which have been made by mining adventure, and draws a comparison between the neglect thus evinced by the mining interests and the manufacturers in the northern and midland counties of England. They have found by experience that the more intelligible their workpeople are, the more industrious they are—that ignorance generates idleness, dissipation, and improvidence; but when educated, workpeople are better qualified to fulfil their several avocations, more attentive to their work, and less subject to the sudden destructive strikes, once so prevalent among them. Schools have, therefore, been founded and supported by the owners of factories, where the children of those whom they employ are educated generally *gratis*, or, at all events, at such a trifle of expense as even the labourer can unmissingly afford. The writer introduces one noble example in Lady Bassett, who has built and supports *several* schools for the poor in Illogan; but not one instance is known in which mine adventurers have combined for the purpose of promoting instruction among the children of the people they employ. We perfectly agree with the intelligent correspondent of the *West Briton* in his general remarks, and that mine adventurers ought to consider the responsibility which their position lays upon them; and that if manufacturers assist in promoting education—in advancing the intellectual development of the children of those employed under them—in improving their comforts, and bringing them up as men and Christians—surely adventurers in mines ought not to lag or shrink from such a duty. We fear, however, there is not sufficient parallel between the cases ever to secure so desirable a boon to the welfare of the rising generation of the mining districts of Cornwall, as established gratuitous public education.

The manufacturing establishments of the northern and midland counties are strictly local and individual, or at most consisting of two or three partners; and where one such establishment probably employs a thousand or more individuals—men, women, and children—the owners feel it their duty, and find it to their interest, to establish these schools for the education of those young minds which are most probably at a future day to be in their employ. With the adventurers in Cornish mines the case is far different. Divided into numerous shares, the proprietors in each adventure are scattered over the kingdom—the majority in London, Liverpool, and other large towns—who have never seen a Cornish mine; and, having their own local charities and connections to support, have no idea of the duties, nevertheless, devolving upon them as Cornish proprietors, and as such drawing a portion of money from her soil. The munificent offer of Sir Charles Lemon to found a mining school, being totally unsupported by either Cornish landowners or mining out-adventurers, holds out, we fear, a poor prospect for the general establishment of gratuitous schools.

A meeting of the Commissioners for the Promotion of the Exhibition of Works of Industry of all Nations in 1851, was held at the New Palace, at Westminster, on Thursday last, at which H.R.H. Prince Albert presided. Previous to the meeting the Mayor of Hull (Mr. J. A. Palmer), accompanied by the Earl of Yarborough and the Right Hon. Matthew Baines, had an interview with Prince Albert, and presented an address from the corporation, thanking him for the interest he had taken in promoting the intended exhibition, and promising their cordial support in carrying it out. There was a large number of commissioners present, but the result of their deliberations did not transpire. From the general enthusiasm with which the project has been received in every large town in the kingdom, the spirit with which the subject was taken up at the Mansion-house, on Wednesday last, and the deputation from Hull on this occasion, which we have no doubt is but the precursor of others, every fear is dispersed as to the final results, which, there is every probability, will be eminently successful. It now but remains to forward the subscriptions by every means possible; and where local committees have been formed, it would be desirable that the London committee should interfere in their arrangements as little as possible, as a spirit of emulation will, in all such cases, be engendered, which, if left to itself, will most likely produce more satisfactory results than if interfered with too much by parties at a distance, of whom they know and care but little. Since the matter has been taken up by the commissioners, it appears to have been progressing under able management, dictated by sound discretion. Here we must leave it, and have little fear for the result; success will redound equally to their credit, as a failure will lead to the public belief that sufficient energy has not been brought into action among the executive.

A correspondent in the *Times* of Tuesday last calls public attention to a proceeding on the part of the new Commissioners of Sewers, which, if correct (and we have no reason to doubt but in every respect it is so), proclaims the late proceedings of publicly offering to competition the best plan for the drainage of the metropolis, a complete farce, and their decision, as to the mode to be adopted, one of the most gross jobs, and barefaced insults to the public, that an irresponsible board of commissioners ever perpetrated. The writer describes himself as "one who has been conferred with on the propriety of his accepting a seat on the commission, and has declined," and evidently thinks that he would have felt himself degraded by joining a party who, as a body, would unscrupulously authorise the most glaring and unjust partisanship which, as individuals, they would probably have blushed to think of.

It is a matter of public notoriety that invitations were sent to some hundreds of engineers to forward plans for an improved sewage of London, which invitation produced, in the months of July and Aug. last, 160 plans; and their apparently impartial proceedings led to the general inference that the commissioners were guided solely by an anxious desire for public good. It now appears, however, that, previous to this invitation, Captain Vetch, one of the commission, had proposed a plan for the drainage of Southwark, which, notwithstanding the scientific suggestions contained in the numerous plans obtained, is now considered the most available, and that their own engineer, Mr. F. Foster, has been directed to prepare estimates of the expense, with a view to carry it out. We cannot here do better than give the writer's own words; he says—

Now, we must remember that this recently heard-of plan was professedly laid down while the information in hand was even less than that furnished by the commission to the authors of plans in October last. We must also remember that Capt. Vetch is a member of the commission, and also a member of the working committee, which sits in judgment upon the plans of the parties invited to compete, and which plans now include for the first time his own scheme. It will be evident to the public that a judge cannot with propriety sit in judgment on his own measures; and the commission would have done wisely to confer with Capt. Vetch, with a view to his withdrawing from the judgment seat, if his plan were such as to be likely to come under judgment; and if it were not of a character to attain that position, the public ought not to have been informed that one of the commissioners was placed so as to render his position invidious in this respect. The commission appear to place Mr. Foster also in a false position, by calling upon him to pronounce a financial opinion on the scheme of one of his masters, who is afterwards to sit in judgment upon that opinion.

The whole proceeding does appear to us one of the most indecorous and brazen-faced acts of defiance to the generally impartial tendency of the public mind that we remember; and, unless a most satisfactory explanation is given, or this partisan plan laid on one side, the future acts of this commission will be viewed with any feeling but one of confidence.

Review of the Iron Trade of France for 1849.—From the official returns of the iron manufacture of France, we find that great exertions have been made by the ironmasters to compete with England and Belgium, more particularly from the steps taken by Government for the revision of the tariff, to allow of the importation of foreign iron and coal at reduced imposts. It appears that the total quantity of ore, from 93 mines, amounted to 30,078,129 quintals, valued at 18,080,000 frs., produced from 474 furnaces; 5,223,852 quintals of cast-iron, from which was obtained 3,601,901 quintals of bar, sheet, and other merchant iron. The total value of the iron produced is estimated at 138,931,832 frs., being more than double what it was 12 years since. Of the six different modes of manipulation in the iron manufacture adopted in France—the Catalan, Contois, Wallon, Nivernais, Champenois, and English, the latter method is most adopted, being about one-half of the whole quantity in the republic, and which is principally effected by coal and coke. The working of the iron and coal mines of France, one of its chief resources, and the consequent returns have increased since 1830 to a great extent; at that period the quantity of coal supplied was 18,626,659 quintals, and in 1848, it had risen to 47,000,000, the importation of British and Belgium coal increasing the consumption in the latter year to 65,000,000 quintals. The production of cast-iron affords similar results; in 1830, the quantity made was 2,663,608; in 1849, it exceeded, as seen above, 5,000,000: 1,484,685 quintals of wrought-iron were produced in 1830, while, in 1849, the make amounted to nearly 4,000,000. The price, which in 1830 was from 36 to 40 frs. per 2 cwts. or quintal, in 1849 was selling at 26 frs., and is expected to be shortly down to from 23 to 25 frs. The collieries give employment to 69,040 persons, receiving as a return for their labour 44,7700,554 frs. The iron manufacture occupies 17,803 persons, and the total estimated to be employed in quarries, coal, and other mineral works, is 297,126 persons receiving 434,308,729 frs. per annum.

Spanish Quicksilver.—The question of the sale of quicksilver by the Government caused considerable discussion in the Congress at Madrid. Senor de Castro accused the Government of carelessness and neglect for some years past in its disposal; that they had repeatedly refused advantageous offers from Mexico, and allowed it to be monopolised by a single house. Senor Mon went at length into his defence, and showed that there was no foundation for these attacks—that owing to various circumstances, as the war between Mexico and the United States, and the reports of large supplies being expected from California, the money value of Spanish quicksilver had been for some time depressed. The Government had put it up to public auction without finding bidders at their upset price; and had they sold the stock on hand in London, it would only have brought $50 a quintal at that time. He had adopted, therefore, the best plan he could, which was to deposit it as a security, and raise money upon it, to pay the dividends, the advances being effected at 6 per cent. interest, and 1 per cent. commission. As to the Mexican offers, one—which was from the Tribunal of Mines—was to purchase the quicksilver, to be delivered in Mexico at the cost of the Spanish Government, at $64 per quintal; and the other was from a house at Vera Cruz, which proposed to sell the quicksilver on account of the Spanish Government at a commission of 7 per cent., and with an interest of 12 per cent. on any advances that might be made upon it. The result of his proceeding had been, that the stock on hand had now been disposed of at $70 per quintal. The return of quicksilver for the year 1849 is stated to have been 13,000,000 of reals.

PROGRESS OF FOREIGN MINES.

It is with much pleasure we call the attention of our readers to the very highly favourable aspect which is now presented by the gold workings at Cocaes, belonging to the NATIONAL BRAZILIAN MINING ASSOCIATION. From the latest advices, which will be found in another column, it will be seen that the general produce for the last 8 days returned was nearly 4 lbs. of gold per day, while the last two days previous to the date of the dispatch, probably not included in the returns, produced 5 lbs. per day, with every probability of increase. The vein at Hartley's stope exceeded, at the date, anything ever seen at Cocaes; and it is probable the miners have, for a dozen years, been at fault, penetrating in an entirely wrong direction from the rich Cavaco main veins, whence the old Brazilians drew such immense riches, and upon the faith of which the property was originally purchased. Whether they have been intentionally misled for sinister purposes will probably never be discovered, although the tenacity with which the whole of the South American natives have ever attempted to keep the secret of deposits of the precious metals to themselves is proverbial, and may have probably influenced the Brazilian modern natives, as well as those of Chili and Peru, in more ancient times. Be this, however, as it may, there appears every indication that the richest auriferous deposits of Cocaes have yet to be laid open; and, aware as our readers are, in common with ourselves, of the extremely fluctuating character of all mining adventures, more particularly in strata abounding in the precious metals, we think there is every reason to hope that, after so many years of vexatious loss and sickening suspense, those who stuck to the foundering ship will still be carried safe into port, and reap a full return, not only for the whole outlay, but interest in addition. To Messrs. Oxenford and Hamilton, who, in spite of opposition, misrepresentation, and under the most disheartening circumstances, steadfastly piloted the vessel throughout its perilous voyage, the utmost credit is due; and believing as we do, and as events will, we trust, prove, that they throughout adopted that course which they thought most conducive to the interests of the association, we doubt not that the congratulations and acknowledgements of their brother-shareholders will not prove the smallest portion of their felicity under such favourably altered circumstances.

At the half-yearly meeting of the UNITED MEXICAN MINING ASSOCIATION, on Wednesday last, there was a very numerous attendance of proprietors, many of whom were from the country, and had never attended a previous meeting. The interest thus excited, doubtless arose from the increasing prosperity attendant on the company's operations, the reality of which, as will be seen from the report in another column, there can be no reason to doubt. While Rayas holds forth indications of continued productiveness, the new *negociacions* of Promontorio and Aldana have already returned nearly sufficient produce to pay the outlay upon them, and the other new mine situated in promising virgin ground, all hold out great hopes of future permanent prosperity. The funds are in a satisfactory condition, and the stores and plant abundant, among which are 500 bottles of quicksilver untouched, by purchasing which at a good market, as compared with the present price, the directors cleared a profit of 2000*l*. The haciendas are in full and profitable employment; we must, however, refer to the report.

Since the last reports from the GUADALCANAL SILVER MINE, formerly one of the richest in Spain, and which has been filled with water for a period of one hundred and fifty years, inserted in the columns of our Journal, information has been received, calculated to raise it in public estimation, and we had the pleasure within the last few days of inspecting some specimens lately received at the offices of the company, which confirm the previous traditions of its peculiarity and richness. These consist of valuable stones of antimonial silver, interspersed with rich coloured strings of ruby silver; in other specimens these are absent. In some cases stones of carbonate of lime or barytes are coated with drusy quartz, and covered here and there with clusters of rich crystals of ruby silver of fine colour; these are from the 34 and 51 fm. levels, and the produce on analysation, after bucking down, has been from 600 ozs. to upwards of 1000 ozs. per ton. The mine has been unwatered to the 104 fathom level, where a lode has been found apparently unworked upon. The following private letter will be read with interest:—

Guadalcanal Jan. 9.—In reply to the few questions contained in your favour of 19th Dec. (only received last post), I beg to say we have unwatered the last level 104 fms., as shown on the old plan, and am happy to state that the appearances in this level are decidedly more encouraging than in either of the last four we have unwatered. There is a most kindly-looking lode, 2 ft. big, and which does not appear to have been driven upon an inch. There appears to be another level below the 104, which we are now unwatering by hand-tackles without any difficulty whatever, as our water at that point is not above 16 gallons per minute, and our engine keeps all the water in the mine in fork going only four strokes per minute. We have no mud to get out. The San Antonio shaft, now sinking, we expect to hole to the 52 fm. level the end of this month, and it may take us another six months to get it down to the 104, where I wish it was now. The bunch was really of the value stated, and our four men raised 300*l*. worth of ore in two days. I think our prospects most encouraging; and such is the opinion the Spaniards have of the mine, that shares only worth $12 each when we commenced working, are now not to be purchased for $43. The cost of working the engine, to keep the mine efficiently drained, will be about 50*l*. per month. We are unfortunately unable at the present moment, for want of a shaft, to make any efficient explorations on the lode in the 104; but when we can do so, I believe our position will be very considerably altered for the better.

Silver ore, to the amount of 450*l*., has already been sent to Seville for sale, and there are enough funds in hand for eight months, so as to completely carry out the exploration of this mine; and, if its traditional richness be only half realised, every share must arrive at an enormous value, as the revenue formerly derived from this mine by the Spanish Government is the largest on record; and from the mine being found to agree in every respect with the old plans, these fortunate results are more probable.

In one of our late Numbers we inserted a copy of a report, presented by the directors of the SOUTH AUSTRALIAN COMPANY to a general meeting of the shareholders on the 28th December last. In it the board mentioned that "gold had been found in several parts of the company's lands;" but instead of *puffing* on this account, however, either *direct* or *indirect*, they "cautioned the shareholders against attaching undue importance to it." By the last Overland Mail some additional information has been received, which puts the fact beyond all doubt, and justifies very favourable anticipations. The precious metal has been found at many different places in the company's lands in the beds of the rivers and streams, which run through their extensive property there; the expense, therefore, at which it can be worked is comparatively trifling, while very favourable ideas may be entertained of the result. We understand the gentleman who made the discovery states expressly that there is work enough for at least 1000 hands. This opinion is not that of a novice, but of one well qualified to judge in such a case—perhaps, of all men in the colony the best qualified; and should it be realised, even with a considerable deduction, what an additional impetus will this discovery give to South Australia. By the *Cecilia*, just arrived from Port Adelaide, after a six months' passage, there have been received 1427 ingots and 1707 cakes of copper, which will thus come into competition in the London market with the Swansea monopoly; and in the Indian and Chinese markets the smelters of South Australia will meet the English monopolists under very favourable circumstances as respects the expense of freight and charges, the results we shall afterwards see. It does not require the spirit of prophecy to anticipate them.

SAFETY APPARATUS FOR STEAM BOILERS.—A simple, economical, and effective apparatus for giving warning when a steam boiler is approaching a dangerous condition, has been constructed by Mr. J. H. Rawlins, of Hope Mills, Wrexham, by the use of which he feels confident, wherever it is employed, the chance of explosions may be altogether avoided. In consists in connecting to the common water-gauge a hollow brass or iron tube, in lieu of the solid rod which works in the boiler top. The bottom of this tube is filled up with fusible metal, and the top is open, having attached to it a whistle, which can give a sound from that of a dog-whistle up to that of a locomotive steam-whistle. A small hole is bored in the pipe above the point where it stands when at its right level; and should this fall—say, a single inch—a clear opening for the steam is made, and the whistle sounds its alarm. Again, should the boiler be overloaded from stoppage of the valves, or other cause, the temperature of the water rises, the fusible metal melts and runs out, and leaves a passage for the steam as before. The cost is literally next to nothing beyond the whistle, which may be had for a shilling or two. It may be fixed by any engineer of ordinary capacity, and is not liable even to get out of order.

THAMES TUNNEL COMPANY

The number of passengers who passed through the Tunnel in the week ending Jan. 26, was—No. of passengers, 17,707.—Amount of money, £78 15*s.* 7*d.*

SINKING SHAFTS BY AID OF COMPRESSED AIR.

Our contemporary, the *Patent Journal*, in its columns of Saturday last edifies its readers with a description of "An extraordinary novel process of backing out water from mines while sinking," which "has recently been adopted in France with marked success;" and the writer further says, "It is with much pleasure we find ourselves the pioneers of communication in conveying this intelligence to our mining interests." With all due respect to our foresighted contemporary, we must inform him, that the process he describes is anything but "recent," or "extraordinary;" and that as much as 6 or 7 years ago the principle was acted upon by a French engineer, when sinking a shaft in a loose, sandy, and silty river deposit in France, where no pumps could keep the water, with perfect success; a detailed notice of the experiment appeared in the *Mining Journal* at the time, and which went the round of the scientific periodicals. As the process is, however, highly interesting, and may not be generally known, we give a description of the apparatus employed, to which, however, we think no mining engineer would have recourse, until all the usual appliances had incontestibly failed. A cast-iron cylinder—say, 6 feet diameter, and 12 feet high—is securely placed over the shaft, fixed to balks of timber, and fastened down by piles. The cover, and the bottom, have a stop-cock in each, and trap-doors, opening downwards; one pipe descends through the cylinder into the shaft to supply compressed air from the blowing cylinders, worked by a steam-engine, and another, which is opened from time to time to let off foul air. In the interior is a windlass and rope, for winding up the earth excavated. When a sufficient quantity of compressed air has been forced into the shaft, the men enter the cylinder, and closing the door and stop-cock in the cover, they open those in the bottom; the compressed air from the pit then rushes into the cylinder, rendering the whole atmosphere of like density, and the men proceed below excavating and tubbing the shaft with oak planking, permanently to keep back the water, while two men are employed drawing stuff at the windlass. When the rubbish has accumulated in the cylinder, the bottom cock and door are closed, the top opened, and the stuff removed. The process, which, it will be seen, though simple in principle, involves much time and expense, has been lately, as described by our contemporary, employed in sinking a shaft at Anzin, in France, where the water, for a depth of from 70 to 80 feet, rushed in in such torrents as no pumps could command; yet the engineer found that a pressure of three atmospheres, or 45 lbs. to the inch, effectually kept it back, and allowed the men to substantially place the oak tubbing. In this compressed atmosphere they found no particular inconvenience, unless they had the night previous been freely drinking, when great pain and pressure was experienced in the ears. The pulses, as a matter of course, beat higher, and candles burn away much quicker, from the presence of a superabundance of oxygen, over that of the natural atmosphere.

ON THE PREVENTION OF ACCIDENTS IN COAL MINES.

We concluded our remarks last week on the report of the Committee of the House of Lords, with the evidence of Dr. HUTCHINSON, who gave very important information on the nature of the "after-damp." He stated that, when an accident happened, there is a pressure of people within to escape from the mines, and a pressure of people without, to go in and help them. The miner rarely considers that the after-damp is a CERTAIN POISON; he considers that it is something which he can resist by some inherent strength, and they go into certain parts to aid their fellow-men, and thus perish. As an illustration of this, he stated that at the explosion at Sheriff's Hill Colliery, in 1819, four brothers, named FOGGETT, thus perished; one died in the explosion; the second brother went in after the first—he died; the third after the second—he died; the fourth after the third, and he died. They will rush into this after-damp, thinking "I am stronger than you;" but they must perish, for it is the unchangeable law of Nature. The following precautions recommended by this witness, who has paid much valuable attention to the subject, are highly important to be known:—

The sprinkling of lime in the suspected locality has been spoken of—that is a very excellent plan, at least it is perfectly philosophical—and also of lime-water; they always have plenty of lime about a pit, and it may thus be useful. Breathing through bags containing slacked lime and Glauber's salt, in equal parts, has been mentioned. This mixture has a great power of absorbing carbonic acid gas; but such plan is uncertain, for if anything stops the porosity of the bag, then the man's respiration ceases. Sometimes it is of great importance to go a few yards (say, 40), "in-by," to try to reach a perishing miner; and a man will enter, and probably he will die before he reaches the spot. I found out, by the observations which I have referred to on respiration, that, by the mere process of forcible expiration and inspiration—that is, forcibly emptying your chest of the air, say, six times, then give one deep inspiration—you can then hold your breath, with the chest full of fresh air, three or four times longer than you can in the ordinary state; for instance, the average time for which we can hold our breath is about three-quarters of a minute at the outside, generally under that, either with the lungs full or empty; but by inspiration and expiration, cleansing the lungs of old air—that is, emptying out the old air which has been in you, and then receiving fresh air in its place—you will be able to go on with ease for two minutes.

The doctor then proved the possibility of this operation. Some of their lordships looked at their watches, and after several deep inspirations and expirations, he gave the signal that he was ready, and then held his breath for one minute and a half. He said long speaking had prevented him doing it effectually then, but he had, when quiet, before friends at home, withheld breathing for two minutes and a half—a time of much importance in saving life after an explosion had taken place.

HENRY HUSSEY VIVIAN, Esq., gave some very important evidence on the results of the employment of mechanical agents to produce ventilation, tending to show that much yet remains to be learnt respecting their employment, and that furnaces, probably, represent much greater mechanical effects than they have credit for.

BENJAMIN BIRAM, Esq., underwent a long examination, principally on the production of currents of air underground, and the best methods used for their admeasurement. His own anemometer was described (some time since given in detail in the *Mining Journal*), and also an ingenious modification of the barometer, to be placed in different parts of underground workings for the information of the working miner—on which, instead of "stormy," "very dry," &c., there would be written "fire quickly," "fire slowly," or other instructions, as the barometrical state of the mine might require. He had tried a ventilator on the principle of the screw-fan; it was set in motion by a small stream of water passed down the shaft; when the winds were in certain directions it acted exceedingly well, and produced a great draught, but at other times the power was insufficient. His opinion was that, if properly carried out, it would be as efficient a mode of mechanical ventilation as could be devised.

NICHOLAS WOOD, Esq., gave, in his evidence, some interesting details of Mr. GURNEY'S high-pressure steam jets, and although he had a good opinion of it as an auxiliary, he appeared to think its effects had been exaggerated. At the Hetton Colliery, for instance, the air, measured by Biram's anemometer, which coursed through the workings was 25,000 cubic feet per minute. The jets were applied, and the quantity was increased to 31,000 ft., making the increase by jet 6000 ft.; but when the jets were used without the furnace, the quantity of air passing was only 22,000 cubic feet, showing that by itself it did not give so good a result as the furnace. The steam employed had a pressure of 38 lbs. on the inch. The following condensed statement of the power of the furnace, as employed at the Hetton Colliery, is interesting, and throws considerable light on its general efficiency, when properly constructed and attended:—

Taking the temperature in the downcast shaft at 60°, the temperature in the upcast at 140°, and the depth of the shaft at 900 feet, and applying the theorem which is given in my evidence, in 1835, which, I believe, is substantially correct; under such circumstances, that would give a velocity of 37 6-10ths feet per second. Now, I should like to explain that that velocity is applicable only to a case where there is no resistance from the air in the pit or shafts; it is applicable only to the case of air going down a shaft, and coming up again, simply, without traversing through the workings, and without friction; but that, I should observe, would be a standard, as it were, of comparison with any experiment made with a machine, where that machine was not applied to carry air through any workings; therefore I give it, in the first place, as a sort of test of comparison with any experiments by machines simply, and without any of the effects of the resistance of the air underground, and without the friction in the air passages; the result, supposing the case of the air going simply down the shaft, and returning up again, would give a velocity of 37 6-10ths feet per second; applied over the area of the Hetton shaft of 153·93 square feet, it would give a current equal to 347,266 cubic feet per minute; that would be the quantity of air which a furnace would produce in a shaft 900 feet in length, with an average temperature of 140°, against a shaft of the same depth at a temperature of 60°. Then, in carrying this into practice, in this case, it is applied to force the air round the workings. Now, I find that the quantity of air passing through the workings, in this case, is 168,850 cubic feet per minute, which is something like half of what the theoretical calculation would give. I find that the average distance which that quantity of air travels in the mine is about 4¼ miles; it is divided into 17 currents, of 10,000 cubic feet each, the maximum distance travelled being 8 1-7th miles, and the minimum 1¼. Now, these circumstances reduce the mechanical effect of the power of the furnace in the shaft to a power equal to 21·3 feet per second, measured by 197,000 cubic feet of air passing up the shaft in a minute.

Mr. WOOD also, on the subject of education, considered that if proper schools were established for persons intended for mining pursuits, it would be attended with very great benefits to the mining interests of the country, the men themselves, and the coalowners. It would be very desirable if a system of schools could be adopted in the mining districts, and connected with a college, or something of the kind, in London. He considered the education of the mining population very much neglected, even among the higher classes; there was no proper education for viewers. King's College, the London University, and Putney College, were not exactly adapted to the mining population. The mining interests were so important, that a general system for the improvement of the mining population was much to be desired.

[*To be continued in next week's Mining Journal.*]

EXPERIMENTS ON THE EXTRACTION OF GOLD AND SILVER FROM THEIR ORES BY THE WET WAY.

BY JOHN PERCY, M.D., F.R.S.

[*Concluded from last week's Mining Journal.*]

I again exposed the residual ore, diffused through water, to the action of a stream of chlorine precisely as before, except that, after digestion during a few hours, I added KO until an alkaline re-action was obtained, the re-action having been found to be acid. White matter, apparently similar to that previously observed under the same circumstances, again occurred on the surface. I treated with a solution of 200 grs. of hyposulphite of soda. On testing the wash-water with HS water, S was precipated, and there was not the slightest dark discoloration. I proceeded exactly as before, and cupelled with about 60 grs. of assay lead. The bead of fine silver weighed 0·675 grs. I again treated the residual ore in a similar manner with Cl for about an hour and a half, and then digested for a considerable time on the sand-bath. On the following day, I dissolved out with a solution of 200 grs. of hyposulphite. I treated the filtrate as usual with dilute SO^3, and tested the wash-water with HS water. I proceeded as before. I employed 100 grs. of assay lead for cupellation. The bead of fine silver weighed 0·154. The total amount of fine silver obtained is 6·636 grs. By parting with NO^5, I obtained of gold 0·197. The silver, therefore, contained of gold 2·968 per cent.

I now boiled the residual ore with a solution containing 100 grs. of KCy, filtered and washed. By addition of HCl in excess to the filtrate, a white precipitate was produced; but on continuing the digestion until the odour of hydrocyanic acid could no longer be detected, it became dark-coloured, which I believed to be owing to the presence of S in some form. I digested the precipitate with NO^5, and obtained a pale blue solution, which did not become in the slightest degree turbid by the addition of HCl. On the filter remained only a minute quantity of matter, like sulphur in appearance, somewhat discoloured; and by heat the characteristic odour of sulphur was evolved, and only a minute quantity of matter was left.

8. In another experiment, in which I heated 1000 grs. of the *finely*-pounded ore, triturated after roasting, with a solution of 200 grs. of hyposulphite, I obtained a bead of fine silver weighing only 0·81.

9. I digested 1000 grs. of roasted ore with a solution of common chloride of lime (hypochlorite) on the sand-bath during two or three days. I then washed and digested the residuum, at a *warm* temperature, with a solution of 150 grs. of hyposulphite of soda. I filtered and washed. To the filtrate I added an excess of dilute SO^3, and heated till the supernatant liquor became quite clear. I filtered, washed slightly, and dried. I enclosed the filter, with its contents, in 200 grs. of assay lead, and I subsequently added on the cupel 100 grs. I obtained a bead of fine silver weighing 5·469, and containing gold, but only to the extent of ·02. I do not, however, place much confidence in this determination of the gold, as the manipulation was hardly conducted with the requisite care.

I dried the residual ore, and by trituration reduced it to a very fine state of division, so that it was passed through the finest copper sieve. I suspended it in cold distilled water, and passed through a stream of Cl during about a quarter of an hour, stirring continually. I then digested on the sand-bath, and left till the next day, when I still perceived a faint odour of Cl. I added 100 grs. of hyposulphite of soda, and digested at a gentle temperature, stirring occasionally. I decanted, and filtered the supernatant liquor. I again digested the residue with an additional quantity of 100 grs. of hyposulphite, filtered and washed. I boiled the filtrate, as usual, with an excess of dilute SO^3. The precipitate soon became dark-coloured. I digested, until the supernatant liquor became clear, filtered, washed, and dried. I detached the precipitate from the filter, which was done without appreciable loss; heated it in a capsule, to expel the free sulphur, and digested it with aqua regia. As the white product, which was obtained by this means, was mixed with minute acicular crystals like chloride of lead, I treated it, after washing, with zinc and dilute hydrochloric acid. I washed and dried the metallic residue, enclosed it in 110 grs. of assay lead, and cupelled. I obtained a bead of fine silver weighing 0·829 gr., making a total of fine silver 6·298.

I examined the liquid left after digestion of the first precipitate with aqua regia, for gold. I diluted it considerably, and boiled with oxalic acid. On the following day (the oxalic acid being added at night) I observed a film of reduced gold of a reddish-brown colour; and a few days afterwards I distinctly recognised minute particles, having the colour and metallic lustre of gold.

10. I treated 1000 grs. of the well-roasted ore, in its coarsely-pounded state, with a cold solution of Fe^2Cl^3. Fe^2O^3 was soon precipitated, being displaced, doubtless, by the oxide of zinc.* The supernatant liquor became clear and colourless. I added HCl, which re-dissolved the Fe^2Cl^3, but it was again precipitated. I added a considerable quantity of HCl, and obtained a greenish-yellow brown solution. I filtered and washed, and treated the residue with a solution of 150 grs. of hyposulphite of soda. I proceeded as usual with SO^3. I used 200 grs. of assay lead in the cupellation, and obtained a bead of fine silver, weighing 4·909 grs.

11. I confirmed the fact that, when chloride of silver is dissolved in a solution of hyposulphite of soda, and treated with a mineral acid, a copious precipitation of dark-coloured matter takes place, which is, doubtless, AgS. But whether the whole of the silver is precipitated under these circumstances as sulphuret I did not ascertain; though from the copious precipitate produced, I think that such is probably the case.

CONCLUDING OBSERVATIONS.

1. The loss of fine silver in the most satisfactory experiment was 13½ per cent. Formerly, in the old amalgamation process in Mexico, my respected friend, Mr. John Taylor, informs me, the loss frequently amounted to 35 per cent. But at present, since the introduction of the barrel-process, the loss has been reduced to 9, or even 5 per cent. My results, therefore, may be regarded as sufficiently satisfactory to justify attention to them with reference to their economic application. It is probable that, on the large scale, with proper appliances, the silver would be much more completely extracted.

2. I would especially direct attention to chloride of lime and chlorine as the agents for effecting the conversion of the silver into chloride, and to hyposulphite of lime, which may readily be obtained as a cheap substitute for hyposulphite of soda to dissolve the chloride. The silver, it is obvious, might be precipitated, either as metal or sulphuret.

3. Since many of the South American silver ores contain gold, it is desirable that both the silver and gold should be extracted by one process; and, to this end, chlorine or chloride of lime seems to be indicated by the preceding experiments.

Mr. Dredge has just completed a very beautiful bridge across the River Lochy, N.B. The bridge is situated at the foot of Ben Nevis, and connects Fort William with Corpach. Previous to its erection, the communication between the opposite banks of the river was effected by means of a ferry, but of late years the great increase in the number of tourists in the western Highlands, and the great quantity of cattle and sheep constantly passing to the Lowland markets and fairs, have rendered this mode of crossing the river quite insufficient. The bridge has been built at the sole expense of Lochiel, the proprietor of the neighbouring country; and none but those who have experienced the misery and danger of crossing the Lochy during a stormy "Lochaber night," can appreciate the improvement thus made. A dinner was given when the bridge was opened; and, from the speech of Mr. Dredge on that occasion, we learn that it is 250 feet span, that the roadway is 17 feet wide, and 5 feet above the highest flood ever known. The towers which support the chains are of granite obtained from neighbouring quarries; 40 tons of iron were used in the bridge, and it is declared capable of bearing a transit load of 350 tons, which is more than it can ever be subjected to, 360 head of cattle being the greatest load that can possibly come on it at the same time. The bridge was commenced in August, and opened on the 20th of December; its cost did not exceed 2000*l*. We believe this makes the fiftieth bridge erected on that principle, with which Mr. Dredge's name is connected.

BEST FORM FOR BRIDGES, INDEPENDENTLY OF EXPENSE.—Mr. Rastrick, Mr. Hawkshaw, Mr. Fox, Mr. P. W. Barlow, Mr. Glynn, Mr. Locke, Mr. Brunel, and Mr. Cubitt, agree in considering that the best form for iron bridges of large span is that of a cast-iron arch. Mr. Grissell states that he considers a well-made straight girder equally to be depended upon, but admits that the arch is the strongest form; and Mr. Fairbairn says that for spans beyond 70 or 80 feet he would prefer wrought-iron tubular girders. Mr. Stephenson would use narrow wrought-iron girders.

* Oxide of copper will also displace it.

STATISTICS OF THE IRON TRADE.

BY JOHN BARCLAY, ESQ., GLASGOW.

Considering the importance of the iron manufacture, and the interest which the trade holds, both in a mercantile and national point of view, it may not be uninteresting to give a brief sketch of its rise and progress.

Without entering into the question as to whether the Phœnicians, in their trade with the British, B.C. 300 years, included iron as well as tin—we are informed by Strabo, that our ancestors understood the working of tin, lead, brass and *iron* (lib. IV. p. 200.) The year after the Emperor Adrian came into Britain, he established the *fabrica*, or great military forge, at or near Bath, contiguous to the hills of Monmouthshire and Gloucestershire, where iron ore was found in the utmost plenty. The constant demand for military weapons induced great activity in such works, or *fabricæ*, and produced the enlargement or laying out of a great military road, whereon the ores dug up in the Forest of Dean and the hills of Monmouthshire, and transported across the Severn at Lydney, were brought to the forges at Bath. In Yorkshire, Hadnock, Monmouth, Keven Pwlldu, &c., the Romans introduced the manufacture of iron, as is attested by the discovery of large beds of cinders, and altars erected to Jupiter Dolichenus, the deity who presided over this metal. To the disturbed state of the country, after the departure of the Romans, may be attributed a comparative decay in the manufacture; yet, though no trace of its extent can be found in the historical accounts of the period intervening to the reign of Canute the Great, who died A.D. 1036, yet it is hardly to be supposed that, looking to the honour in which artificers who excelled in making swords and implements of war were held by the Anglo-Saxons, the production of iron had been allowed to sink into obscurity.

Camden states that, in and before the reign of William the Conqueror, the principal trade of the city of Gloucester was making and forging iron; and the *Doomsday Book* mentions, that the tax paid by this city was 36 dicars of iron—a dicar being two bars and 100 iron rods for nails or bolts, for the use of the royal navy. Although the forging and working of iron had been so long and so extensively practised, no precise period can be assigned to the discovery of the art of casting; we hear, indeed, of cannon in the year 1327, which are then supposed to have been first used by Edward III. in his invasion of Scotland, but which may have been bars of iron hooped together. An Act passed in the twenty-eighth year of Edward III., prohibited the export of iron, and gave power to the magistrates to regulate the price During the fourteenth and fifteenth centuries, iron and steel were imported from Germany, Prussia, and Spain; but, on the petition of English manufactures to the House of Commons, in 1483, the importation was prohibited. In 1568, mills for drawing wire were erected, by several Germans, in the Forest of Dean, &c., previous to which manual strength was employed. Prior to the reigns of Elizabeth and James I, we are without particular information respecting the progress of the manufacture of iron; but, in 1558, an Act (1 Eliz. c. 15) provides that no timber, of certain specifications, and in certain localities, was to be felled to make fuel for burning iron; and again, in 1581, a farther Act was passed to prevent the *destruction* of timber in the manufacture of iron. The scarcity of fuel being felt, interested parties naturally endeavoured to find a substitute; and this, after repeated trials and failures, Lord Dudley at length discovered in coal, during the reign of Charles I.

In 1623, a Bill was passed through Parliament abolishing monopolies, but specially excepting Lord Dudley's patent; yet, notwithstanding the manifest importance of using coal instead of wood, the patentee nearly lost his life, in addition to the destruction of his works, by popular fury. The attempts to substitute pit-coal for charcoal having thus been rendered abortive, the manufacture seems to have sunk into comparative insignificance—the number of furnaces 300, as mentioned by Dudley, having dwindled to 59 in 1740, with a total production of 17,350 tons.

In 1713, Mr. Abraham Darby introduced the use of pit-coal in his furnace at Coalbrook Dale; and, in 1747, Mr. Ford is stated to have made iron from coal and iron ore, "brittle or tough as he pleased."

The introduction of the steam-engine superseded entirely the use of the small leathern bellows worked by manual, oxen, or horses' labour, and gave an impetus to the manufacture, which has gone on increasing at a ratio altogether unthought of 150 years previous.

In Scotland, the manufacture of iron was commenced from charcoal at Goatfield—at Bunawe, in 1753—and the celebrated Carron-Works in 1760, and extended by the Devon-Works in 1792; about which period the introduction of the double-power engine of Watt, and its general use by the masters, raised the production—viz: in 1788, from 7000 tons to, in 1796, 16,086. The annual rate per furnace was also increased; thus, in 1740, the average stood as 294 tons; in 1788 it had increased to 545 tons. In 1796 the average production of the Scotch furnaces was 946 tons; that of the English, 1048 tons.

Next to the use of coal in place of wood in smelting pig-iron, the discovery of the blackband ironstone by David Mushet in 1801, and the introduction of the hot-blast by J. B. Neilson in 1828, have given a stimulus of no ordinary extent to the manufacture; indeed, these latter discoveries may be said to have enabled Scotland to arrive at its present enormous rate of production. The peculiarities of the blackband mineral consist in its being more easily fused, and a very high per centage of pig-iron being obtainable from the ores. Prior to the introduction of the hot-blast, the opinions generally entertained were, that cold air was most efficient; and, for the attainment of this end, every means in their power were employed by the ironmakers to reduce its temperature. In Russia the blast was conveyed through vaults of ice. These opinions were based on the fact that the furnaces worked better, both as to quantity and quality, in winter than in summer. Since the use of the hot-blast, it has been found that, independent of an increase of 35 to 50 per cent. in quantity, from the same or equal-sized furnaces, a great change has been effected in the saving of cost in production, by reducing the quantity of coal and lime, or flux, employed. Formerly, raw coal was never, or but very seldom, used—coke made from coal, at a loss of 50 per cent. according to quality, being employed; but raw coal is now used at a saving of 3 to 3½ tons per ton of pig-iron; from this, however, must be deducted the weight of coal requisite for heating the air. A saving has also been made in the quantity of limestone employed, to the extent of nearly 10 cwts. per ton of pig-iron, and a greater command obtained over the furnaces in turning out any particular quality of iron derivable from the description of mineral employed. Besides these advantages, the engines employed are enabled to do more work as to the quantity of air introduced—that is, an engine formerly required to blow three furnaces is now enabled to blow four, proper means being adopted for heating the air. The degree of heat given to the blast is generally from 500 to 600°, or to the point of melting lead. An idea has been and still is entertained by some consumers of iron—which, however, has never been supported by any evidence beyond popular prejudice—that hot-blast made iron is inferior in strength to cold-blast iron. Experiments made by different parties have given results contrary to this belief. In February, 1842, a series of experiments, instituted by Mr. Mushet, at the Milton-Works, showed that—

Cold-blast, No. 3, broke at a weight of ..... *Lbs.*	438½
Hot-blast, ditto ditto	520
Ditto re-melted in the air-furnace	610½

And hot-blast Yniscedwyn iron, made with anthracite coal, he found 20 to 30 per cent. stronger than "the strongest iron made in England or Scotland." In a series of experiments by Mr. J. Houldsworth, he found Calder hot-blast broke at 765 lbs., the bar being 1 inch square and 3 ft. long

Brymbo iron, hot-blast ..... *Lbs.*	734
Wilsontown, ditto	706
Pentewyn, cold-blast	681
Gartsherrie, hot-blast	633
Govan ditto	643
Coltness ditto	636
But a mixture of Coltness and Gartsherrie gave	842
Ditto ditto Brimbo	667
Shotts, hot-blast	594
Shotts, Coltness, Gartsherrie, and Castlehill, mixed	639

Independent of the above results, Messrs. William Jessop, Silverwood, Sparrow, Baker, and others, declared, in a recent trial, their conviction that hot-blast was equal to cold-blast iron. The latter has commanded in some markets a somewhat higher price than the former; but a great cause of this difference has, it is believed originated from the fact, that the introduction of the hot-blast process enabled makers to make pig-iron from the materials formerly thrown aside as useless,—the great power of smelting acquired by the heated air rendering not only the most refractory, but inferior ores reducible. Pig-iron so produced had the property of being with great difficulty distinguishable from good iron, by fracture or colour; but, unfortunately, on being cast, became collapsed, so as to leave large indentations in the casting. Without attending to these points, consumers and founders branded hot-blast made iron as weak and comparatively less valuable, as being deficient in strength, &c. A prejudice which has not yet been totally overcome has been the result of such opinions.

Next to the manufacture of pig-iron, that of malleable iron has assumed an important position.

The earliest erection of any note was that established at Wilsontown in 1790—1, which, owing to some differences among the partners, passed into the hands of Mr. Dixon, who extended and improved the works, by adding rolling, slitting-mills, &c., in 1798.

There are now in active operation several large works, including Monkland, Govan, Dundyvan, Muirkirk, Glasgow, Mossend, East of Scotland, and West of Scotland—able to produce a quantity sufficient for any ordinary demand; and it is gratifying to add, that the quality of the bar-iron so produced is giving general satisfaction, both at home and abroad.

A glance at the subjoined tables will give an idea of the great fluctuations in price which have occurred, particularly in bar-iron.

Between the years 1795 and 1800, originating in the embargo laid upon the import of Russian iron, and the great increase in our home consumption and exports—an advance, including the duty, of nearly 10*l.* per ton took place; and this operating as a sufficient premium for increased production and employment of capital, so rapidly did the manufacture proceed, that the price fell annually with great regularity till 1824, when it reached 9*l.* per ton. In March, 1825, a period of great speculation, it had reached 15*l.* per ton, and again declined in March, 1830, to 6*l.*; since when it has risen and fallen according to the demand and the increase of production. At present, it may be quoted at 5*l.* 15*s.* and 6*l.*

The following table shows the estimated average production of malleable iron for the last five years:—

PRODUCTION OF MALLEABLE IRON.

1845—Estimated at	*Tons*	35,000
1846 ditto		45,000
1847 ditto		60,000
1848 ditto		90,000
1849 ditto		80,000

The past gives reason to hope much from the future, in successive improvements of the manufacture, in lessening the cost, diminishing the time occupied in smelting, and, as a matter of course, increasing greatly the production. The advantages enjoyed by our country are such as can scarcely be equalled, certainly not surpassed, by any other. Our works, situated on mineral fields abounding in the various materials—coal, ironstone, lime, and fire-clay, obtainable at a comparatively easy and cheap rate, and possessing every facility of carrying their products to market, need hardly fear any competition. It is truly astonishing, when we look back and consider in how few years the iron manufacture has arrived at its present vast extent, and that the rapid increase has produced no increase of stock. The iron trade, in connection with others, feels the great effects of general stagnation, but not from over-production, as with its growth new channels of consumption have kept pace.

The endless details of the foundry trade consume a large proportion of the make. In building, iron is becoming a very great substitute for wood. Railroads and vessels absorb a large quantity; and, indeed, it would be difficult to point out in what, in some way or another, it is not used.

"With increased facilities of producing iron at a cheap rate, America, France, &c., will become even larger purchasers than at present; and our iron trade, unlike many other manufactures, being altogether the production of our own soil, will continue to give employment to hundreds of thousands of our population—to the great advantage of the country at large, and, it is to be hoped, the individual benefit of the ironmaster."

In 1746, the make of pig-iron in each county of England, as nearly as could be arrived at, was as follows:—

Brecon	2	furnaces	600 tons.
Glamorganshire	2	"	400 "
Carmarthenshire	1	"	100 "
Cheshire	3	"	1700 "
Denbighshire	2	"	550 "
Derbyshire	4	"	800 "
Gloucestershire	6	"	2850 "
Herefordshire	3	"	1350 "
Hampshire	1	"	200 "
Kent	4	"	400 "
Monmouthshire	2	"	900 "
Nottinghamshire	1	"	200 "
Salop	6	"	2100 "
Staffordshire	2	"	1000 "
Worcestershire	2	"	700 "
Sussex	10	"	1400 "
Warwickshire	2	"	700 "
Yorkshire	6	"	1400 "
Total	59	furnaces.	17,350 tons.

In 1750, the production of Great Britain was			*Tons*	22,000
1788, ditto ditto	by	85 furnaces		68,000
1796, ditto ditto		121 "		125,000
1806, ditto ditto		169 "		250,000
1820, ditto ditto		— "		400,000
1827, ditto ditto		284 "		690,000

By different districts, as follows:—

Staffordshire	95	furnaces	216,000 tons.
Shropshire	31	"	78,000 "
South Wales	90	"	272,000 "
North Wales	12	"	24,000 "
Yorkshire	24	"	43,000 "
Derbyshire	14	"	20,500 "
All Scotland	18	"	36,500 "
Total	284	furnaces.	690,000 tons.

In 1830, Great Britain produced, by 376 furnaces, 677,417 tons, and in 1840, by 402 furnaces, 1,396,400 tons, as follows:—

South Wales	132	furnaces	505,000 tons.
Staffordshire	123	"	427,650 "
Shropshire	24	"	82,750 "
Yorkshire	25	"	56,000 "
Derbyshire	13	"	31,000 "
North Wales	12	"	26,500 "
Forest of Dean	4	"	15,550 "
Northumberland	5	"	11,000 "
All Scotland	64	"	241,000 "
Total	402	furnaces.	1,396,400 tons.

By 162 hot-blast furnaces	628,000	tons.
240 cold-blast ditto	771,400	"
402 furnaces.	1,396,400	"

Scotland alone produced:—

In 1845, by	94	furnaces, as near as could be calculated	500,000 tons.
1846, by	97	ditto ditto	520,000 "
*1847, by	89	ditto ditto	500,000 "
1848, by	103	ditto ditto	590,000 "
1849, by	113	ditto ditto	690,000 "

Or a quantity equal to the production of Great Britain, in 1827, by 284 furnaces.

* In 1847, a strike took place among the miners, which lasted from July to September.

ANNUAL OUTPUT PER FURNACE.

1740, average production per furnace per annum				*Tons*	294
1796,	ditto	ditto	ditto		1033
1827,	ditto	ditto	ditto		2429
1840,	ditto	ditto	ditto		3473
1849,	ditto	ditto	ditto		6106

AVERAGE AND COMPARATIVE VIEW OF PRICES OF PIG-IRON,

FOR THE LAST TWENTY YEARS.

1830	£5 0 0	1835	£4 10 0
1831	4 10 0	1836	6 15 0
1832	4 10 0	1837	4 0 0
1833	4 0 0	1838	4 0 0
1834	4 5 0	1839	4 10 0

	1844.			1845.			1846.			1847.			1848.			1849.		
January	£2 0 0	£3	5 0	£4	0 0	£3	13 4	£2	7 8	£2	7 0			
February	2 5 0	3	14 0	3	17 6	3	13 4	2	9 8	2	11 7			
March	2 10 0	5	5 0	3	10 0	3	11 1	2	4 6	2	9 9			
April	3 5 0	5	7 6	3	6 0	3	10 8	2	1 8	2	8 0			
May	3 5 0	4	8 0	3	10 0	3	5 3	2	4 2	2	3 9			
June	3 5 0	3	5 0	3	8 0	3	5 0	2	3 0	2	4 4			
July	3 0 0	3	5 0	3	10 0	3	8 1	2	5 3	2	5 0			
August	2 15 0	3	7 6	3	15 0	3	7 9	2	4 6	2	5 4			
September	2 10 0	4	2 0	3	13 6	3	6 0	2	4 10	2	4 0			
October	2 12 6	4	10 0	3	9 6	2	19 10	2	2 9	2	2 10			
November	2 12 6	3	17 6	3	9 0	2	11 0	2	1 9	2	4 3			
December	2 17 6	3	16 0	3	12 6	2	7 6	2	2 0	2	7 2			
Average	£2 14 9	£4	0 3	£3	11 9	£3	5 0	£2	4 4	£2	6 1			

Average price for the five years, 1840 to 1844	59s. 2d.
Ditto ditto 1845 to 1849	61s. 5d.
Ditto ten years, 1840 to 1849	60s. 3d.

Comparative View of Stocks on hand on 31st December.

1845	*Tons*	240,000	1847	*Tons*	89,000
1846		144,300	1848		100,000
Decrease		95,700	Increase		11,000
1846	*Tons*	144,000	1848	*Tons*	100,000
1847		89,000	1849		195,000
Decrease		55,000	Increase		95,000

AVERAGE PRICE OF BAR-IRON.

1813	£12 6 8	1822	£8 1 3	1831	£5 13 9
1814	13 18 4	1823	8 0 0	1832	8 13 4
1815	13 13 4	1824	8 19 2	1833	6 12 11
1816	12 2 6	1825	12 14 2	1834	6 18 9
1817	10 12 6	1826	9 15 10	1835	6 10 0
1818	12 1 8	1827	9 7 6	1836	10 12 6
1819	12 5 0	1828	7 18 4	1837	9 1 3
1820	10 13 4	1829	6 15 8	1838	9 4 7
1821	8 18 4	1830	6 3 9	1839	9 15 0

AVERAGE MONTHLY PRICES OF BAR-IRON,

FOR THE LAST TEN YEARS.

	1840.	1841.	1842.	1843.	1844.	1845.	1846.	1847.	1848.	1849
January	£9 ..	£8 ..	£6½ ..	£5½ ..	£5 ..	£7½ ..	£10 ..	£9½ ..	£7½ ..	£5½
February	8½ ..	8 ..	6½ ..	5½ ..	5 ..	8½ ..	10 ..	10 ..	7½ ..	6
March	8½ ..	8 ..	6½ ..	5½ ..	5½ ..	9½ ..	10 ..	10½ ..	7½ ..	6½
April	8½ ..	7½ ..	6½ ..	5½ ..	6 ..	10 ..	10 ..	10 ..	7½ ..	6½
May	8½ ..	7½ ..	5½ ..	5½ ..	6½ ..	10 ..	9½ ..	10 ..	7 ..	6½
June	8½ ..	7½ ..	5½ ..	5 ..	6½ ..	9 ..	9½ ..	10 ..	7 ..	6½
July	8 ..	7 ..	5½ ..	5 ..	6½ ..	8½ ..	9½ ..	9½ ..	6½ ..	5½
August	7½ ..	7 ..	5½ ..	4½ ..	6½ ..	8½ ..	9½ ..	9½ ..	5½ ..	5½
September	8 ..	7 ..	6 ..	5 ..	6½ ..	9 ..	9½ ..	9½ ..	6½ ..	5½
October	8½ ..	6½ ..	6 ..	5 ..	6½ ..	10 ..	9½ ..	9½ ..	6½ ..	5½
November	8½ ..	6½ ..	6 ..	5 ..	6½ ..	10 ..	9½ ..	9 ..	6½ ..	5½
December	8½ ..	6½ ..	6 ..	5 ..	6½ ..	10 ..	9½ ..	8½ ..	5½ ..	5½
Average	£8½	£7½	£6½	£5½	£6½	£9½	£9½	£9½	£6½	£5½

Average—First 5 years, £6 11s. 4d.; last 5 years, £8 3s. 10; last 10 years, £7 7s. 6d.

Rails	5s. to 7s. 6d. extra to prices of bars.	
Sheets	40s.	ditto.
Angle iron	30s.	ditto.
Hoops	40s.	ditto.
Best iron	25s. to 30s. per ton extra.	

Original Correspondence.

ON THE MANUFACTURE OF BAR AND WROUGHT-IRON.

SIR,—We consider Mr. R. Plant's invention, in the manufacture of bar and wrought-iron, by far the greatest improvement of the age, in respect to the manufacture of iron. We have in it the power of increasing heat to any degree in the shortest time, and also power to check the same without the use of the old damper, which serves only to confine in the puddling chamber injurious gases, which greatly deteriorate the quality of the iron when finished. Blowing the steam over the surface of the iron will, doubtless, decarbonise and lower the heat of the furnace. The last part is very good—viz.: the regulating of the heat in the preparatory chamber: we have always found this a very difficult thing, as we have either had the raw iron running into the balled iron, or we have had the heat in the puddling chamber so much interfered with, as to render a preparatory chamber a great nuisance—in fact, a loss; but now I see we can keep all right, and turn it to a good account. The damper, E, will be in a warm place; and we should like to know whether Mr. Plant has ever used it or not. If it can be put to work, we think it a very great improvement, as it will at once part the iron from the fire, and prevent the use of the ordinary damper. We think Mr. Plant should state his terms; in doing so, we guard him against going for too much. JOHN DAINTY.

Birmingham, Jan. 30.

ON THE TREATMENT OF RICH SILVER ORES.

SIR,—Your correspondent, Mr. Ennor's letter of the 22d Jan., has just fallen under my notice, and upon which may I beg the favour of a little space in your valuable Journal to make a few remarks. Not having had the honour of an acquaintance with the first managers of Wheal Duchy, Wheal Brothers, and Wheal St. Vincent mines, I can form no opinion as to their capabilities; but their management, according to Mr. Ennor's showing, must have been a very sorry affair. I cannot imagine why they should have taken 10 or 12 years to test the quality of their refuse work, when the truth is that 12 hours, with the use of a little nitric acid and common salt, would have sufficed for the purpose. All that can be said of them, therefore, is that they could not have understood their business; *let us hope that we of the new school are greater adepts in the art!* There is a very clear and palpable difference in the mode which we have resorted to in reference to the silver ores of these mines, and those which were dressed under the direction of Mr. Ennor; for it is evident that in every instance he subjected his ores to the action of a running stream, and I am not, therefore, surprised at the results which he arrived at; but I question the correctness of his experiments, when he says, he sustained a loss by "jigging" in what is termed a "still hutch." It certainly is not to be accounted for chemically, and if the "slimes" were allowed time for precipitation it would be equally difficult to account for it mechanically; in short, I should set it down as an error, which a second experiment would have corrected. Your correspondent also seems to have fallen into another very grave mistake, inasmuch as he pre-supposes that in any attempts to dress silver ores, or, in other words, to render them more valuable by lessening their bulk, or tonnage, water is the chief agent to be employed; whereas it is undoubted that, as to many kinds of ores, a slow fire is much more effectual, and especially in our own case, where the ore is principally the arseniuret of silver, though accompanied by native silver and other sorts of silver ores, and metallic arsenic. Your correspondent seems also to fancy that all the silver ores found in this county must necessarily be blended with lead; the reverse, however, is the case with us; we have never met with an ounce of lead in our lode, and in this respect, I believe, we strikingly resemble the lodes of Mexico, as, indeed, do the ores themselves. Mr. Ennor will find that he has leaped to conclusions at railroad speed, when he says that he sees no chance of my reducing our ore, by any process, more than 1-20th part—and he sets it down at that. He will, I take it, be ready to admit his error, when I tell him that many specimens of ore, which have produced by assay from 800 to 1000 ozs. of silver to the ton, have lost, by sublimation of arsenic, more than 40 per cent.; and I did not adopt our present plan of calcination, before we had well ascertained, by numerous careful experiments with the crucible and test, that the subliming process would reduce the tonnage, upon the whole, upwards of 25 per cent., whilst the quality would be proportionably increased; and I have the pleasure of adding that the results are verifying the truth of them. Besides which, if we were prepared with a calcining house of our own, the arsenic sublimed would more than cover all the expenses attendant upon the process, and the savings in the returning charges, including freight and carriage, will be very considerable.

Of this I have satisfied myself, and I have the testimony of the highly-respectable firm of Messrs. Robert Michell and Son, of Truro, to bear me out. I own our being compelled to avail ourselves of the use of a tin burning-house has been attended with inconvenience, because they are not easily obtained, and, in the present instance, we are under obligations to a friend for one. It may be true that a trifling waste has been made, but nothing of consequence, compared with the results; but as to any of the silver ore being carried off in the process, I believe it to be entirely out of the question, though I shall soon ascertain if any is lodged in the flues. In conclusion, I invite you, Mr. Editor, to call at the office to look at some new specimens which I have just despatched, and I warrant you will declare the course I have pursued is the proper one; and as we have a prospect of having much of a similar kind, you will advise that we continue the plan, which we find so successful.—F. DANIELL: *Feb.* 1.

P.S.—Should Mr. Ennor be visiting this neighbourhood, I shall have great pleasure in seeing him here.

ON BLASTING IN MINES AND QUARRIES.

SIR,—As so much has been said on the subject of safety fuse, it appears to me time to change the subject, and, with your permission, I will now make a few remarks on blasting, which may not be uninteresting to your readers. The bag described by Mr. Shepherd is what miners term a pitch-bag, and I am sure he will not take any credit to himself for its invention. In the days of my youth the mining boys made them, and exploded them under water for pastime in idle hours, and there can be no doubt of its efficiency for blasting of ice; but it does appear rather strange that the pitch-bag—an invention of the miners of Cornwall for more than a century back—should not come into general use until Mr. Shepherd introduced them. I will now condescend to tell him that able miners use clay.

and half-taught ones use pitch-bags; the majority of miners detest them. Let Mr. Shepherd go into what is termed a bad air level, and explode his pitch-bag, and remain there one hour after, and he will wish himself, pitch-bag and all, on the Plymouth Haugh, to get a puff of the sea breeze. Mr. Shepherd would find a wide difference between the open air and open rock at Plymouth, or even Penn Recca Tunnel, open at each end, and a deep, tight, small, and foul-aired level in a mine. On the surface these bags can be had of different sizes at five minutes' notice; but in the mines they have to be taken down from 100 to 300 fms. deep—most times between the men's shirt and skin; and when they get down in hot rarefied air, Mr. Shepherd would find them not very agreeable companions. In answer, it might be said, grease them: not much improvement. The great art in blasting is to keep a given quantity of powder as near the bottom of the hole as possible, which is not to be done with a pitch-bag; and five out of ten of them, in a tight level, only blow off the upper part of the hole, and spoil it for a second charge. In tamping a tight hole, a small bag often bursts, and if made large, and a corner breaks off, they will not go in; when 200 fms. perpendicular is a long hill to climb to get at the store-house for a bag to fit. A deal more might be said on this subject, but it is useless, as public opinion is against it, which, in most cases, is the surest test. Should Mr. Shepherd be right, I give him much credit for his candour in throwing it open to the public. N. ENNOR.

Treborough House, Jan. 28.

WHAT IS, AND WHAT IS NOT, THE COST-BOOK SYSTEM?

SIR,—However "light" the style of my letters may have been, it is quite evident they have given a "heavy" blow and discouragement to the projectors of the self-styled "improvement" system; and I am disposed to pass over the irritation apparent in every line of "A Shareholder's" letter, and smile at the ingenious sophistry it contains. He states that I have not, as he expected, met the question manfully; but have indulged in "*a ponderous levity*" (what, by the way, does "a ponderous levity" mean?) *without even attempting to reply to his former letter!* After this I shall not be surprised at what he says next. However, the correspondence is before the public; let the public judge between us.

I am not the enemy of the West Polgooth. In the first letter I addressed to you I referred to it thus:—"*I believe the speculation to be a good one; and, further, the directors ought to be obliged to me* for calling their attention to an error—the consequences of which, sooner or later, will, if persisted in, injure their property and disappoint their shareholders." Had the directors then consulted with any of the managers of our large mining companies, or with others practically acquainted with the working of the legitimate Cost-book System, as recognised by the Stannary Court, they would have acted far more wisely, than by allowing an injudicious friend to force upon public notice plans and proceedings contrary to all mining usage, and which can only "pass without censure, when they pass without observation."

I will now call your attention, *seriatim*, to the "points" in your correspondent's second letter; and if I have to speak somewhat too plainly, his letter has forced me to it in my own justification. Upon the first point we perfectly agree. He says—"The formation of a company does not consist in issuing a prospectus. *In bubble companies*, it is, perhaps, the chief feature; but in *bonâ fide* ones it is of the least importance." Now, Mr. Editor, I have always upheld that there are plenty of capitalists to be found to take up a good mine, without the aid of puffing prospectuses; and I find, so far back as 1838, I exposed, under the signature of "Argus," the plan of getting up mining companies; and, from that time to the present, have watched the formation of dozens of them, and have exposed many of them in print. I have, it is true, received plenty of abuse from concoctors for so doing; but I have also received the thanks of many who have been saved incurring serious losses, and I have considered myself amply repaid. I mention this simply to show that my objection to the prospectus system, and which I ridiculed in my last, *is nothing new*; and whilst a shareholder evidently intends to show that he is also opposed to it, I am willing to suppose that he never read the statements inserted in the prospectus of the West Polgooth Mining Company (and to which I have not yet referred), and that he is ignorant that it has been advertised and circulated in every imaginable way, and (as to my astonishment I have been informed by an eye-witness), freely scattered about in the boxes of a coffee-room in the City, and *stuck round the walls of a bowling alley*, to be the butt and ridicule of its frequenters. If persons holding a respectable position in society allow their names to be thrust before the public in this way, I can have no possible objection to it; but they will at least allow me to observe, if this be a part of their "improvement" system, the fewer imitators they have, the better it will be for the respectability of mining.

The next point in "A Shareholder's" letter is the "legal one." Now, for certain reasons, which I need not name to him, I was generous and candid enough to acknowledge I understood but little of law, and left that point to be settled by the public or by himself; and, taking advantage of my good nature, he, in his extremity, catches at a straw, and says I am incapable of arguing the question, because "*the whole question turns upon this*"—that is to say, are "scrip" or contract notes legal or illegal? All other considerations, together with the objections I made to the system as being open, if adopted by unscrupulous persons, to great abuses, are at once thrown overboard, and the "*whole question turns upon this!*" I fully expected upon reading further that your correspondent would at least have settled the legal point; but has he done so? No; he contents himself with taunting me upon an ignorance I candidly confessed, and leaves the public to *infer* that scrip are legal. I stated in my former letter my opinion (formed from the opinions of others more able to judge than myself), that scrip shares were illegal—scrip mining companies having been abolished by the Joint-Stock Companies' Act; and my opinion is unchanged.

Your correspondent asks if I know the difference between "scrip certificates" and "contract notes." I will, therefore, describe what I take to be *scrip*, and ask *him* to rub his eyes again, and show your readers the difference. Scrip shares were represented by pieces of parchment, or ornamented paper, issued on payment of a certain sum of money, and passing from hand to hand like a bank note, the directors signing them, and thereby contracting to acknowledge them any time to represent a certain interest in a certain mine, and to be entitled to all its proportionate profits in the undertaking of which they (the directors) were the responsible parties, receiving and appropriating the funds, and *ostensibly* the only liable parties to the creditors. After the passing of the Joint-Stock Companies' Act, no companies were allowed to be formed upon this plan. Will "A Shareholder" now favour you with a copy of his "contract notes?" *Scrip certificates* of the *registration* of shares under the Joint-Stock Companies' Act, and also on the Cost-book Principle, are very different from the old scrip, and upon them no discussion is required.

In the case of the United Hills Company, where the shares were held by "scrip," such as I have described, the directors were called upon to pay heavy liabilities, and they, in turn, came upon parties who were known to have held scrip (many, I am told, burnt them, hoping to escape, but in vain.) One such fact as this is worth all the special pleading of "A Shareholder." The next point—that directors might not fulfil their contracts, &c.—your correspondent is obliged to concede to me, but tries to weaken it by an absurd and ridiculous statement, that, upon the same principle, parties ought not to trust bankers and merchants with their money, because they would not know who might succeed them in business. The cases have no analogy whatever. I repeat that, were a precedent established for forming mining companies upon the system advocated by your correspondent, we should have hosts of directors of bubble companies—little better than men of straw—who would take the money of shareholders fast enough. How wisely they might expend it, for the interest of their "equitable claimants," is another thing.

I shall not descend to a controversy with Mr. Richardson—not even to make him the subject of a little "satirical bombast." I have often found that a little ridicule will have a marvellous effect upon some persons, when to argue with them upon simple and plain matters of fact were a useless task. Their own visionary schemes and notions are hugged with such tenacity, and stubborn facts so mauled and tortured by quibbling and special pleading, to suit their own ideas and *interests*, that the non-reflecting are sometimes deceived for a time, and believe that what parties insist upon so tenaciously they really must understand. I confess I am not fond of the pastime of breaking such butterflies upon wheels. Your readers may, perhaps, be induced to inquire, as your "engineering" correspondent has put himself forward as the projector of the new system, what, among other things, are his qualifications for a practical miner?—and who are the "gentlemen of great experience" in the profession who have guided him in this path of improvement, the end of which requires no great stretch of imagination to foresee?—ARGUS: *January* 28.

P.S.—Since writing the above, I have seen the prospectus of another company, formed for working an old mine under a new name, and which forcibly illustrates what "examples" may produce. The liability of the shareholders is to be limited to 10*s.* per share, the shares are to be represented by transferrable certificates, the holders not to be allowed to have any vote in the management of the affairs, *until they register them*. Many of the statements are so extraordinary, that a postcript cannot do them justice; I will, therefore, only notice one at present, and one more startling and absurd I never read, even in a mining prospectus. Malachy and Co., it is said, expended 10,000*l.* in opening the mines, and "it is the opinion of practical miners, *that tens of thousands of pounds worth of silver and lead ore will be raised between the* 10 *fathom level and the surface.*" Poor Malachy! Kind and generous-hearted as he was whilst living, what would he say, could he rise from his grave in a foreign land, and learn that he spent 10,000*l.*, and left this monstrous fortune within the grasp of a pickaxe! What, too, has the lord been about, that he has sold such a wonder for 500*l.*; better had he taken to the pick and gad himself. Tens of thousands of pounds worth of ore to be raised within 10 fathoms of the surface! ! What *practical miners* made such an assertion? I have too good an opinion of this respectable body, to believe that even one can be found to assert it. But more anon.

THE ARCTIC EXPEDITION.

SIR,—I will frankly confess that I think Government were ill-advised to reject Lieut. Gale's proffered services in reference to the employment of his balloon as an agent of discovery—much, very much, might have been reasonably expected from it. I do not think that the density of the atmosphere would have disturbed its full efficiency, and means the most simple would have prevented the valve of the balloon from adhering, should it freeze—viz.: the disengagement of sulphuric acid in contact with ice, or unslacked lime with water; in these cases *heat* adequate to the purpose would have been developed. The survey obtained from the altitude attained by a balloon would, amid these arctic scenes, form a sublime panorama, and the vision explore a region, which no other means devised by man could accomplish. Gay Lussac attained an altitude exceeding 23,000 feet above the level of the sea in his balloon inflated with hydrogen; and, from the buoyancy of that gas, obtained from the action of diluted sulphuric acid on zinc or iron turnings, the quantity required for the desired ascensional power, would be a matter of no difficulty. I was rather surprised at the toy balloon experiment made at Woolwich, for the purpose of dispersing "winged messengers" liberated by a port fire. These printed messages were attached to *various tinted* papers. Now, the only really available colour in such circumstances would be *black*, from its entire and positive contrast with the *general* whiteness of snow. They seem in their wisdom to have forgotten the phenomena of the *red* or *crimson* snow (*protococcus nivalis*, Adgard), the "blue snow" (*byssus cobaltiginea*), and *green* and *yellow* snows, as seen and described by Baron Wrangel, in arctic regions.

I repeat, I am sorry Government has not been better advised in fitting out the *Enterprise* and *Investigator* for their perilous enterprise; and if favoritism had been set aside, and ingenuity been consulted, these vessels might have gone forth equipped with many a useful and available plan.

From the experiments I have made on ice, and more recently repeated with sulphuric acid in its prompt liquefaction, I am persuaded it would constitute an auxiliary of great power in these icy regions—as in drilling, perforating, or cleaving the ice to any depth.

I hope, when the *philanthropic* object of the expedition is once determined, an end will be put for ever to these most hazardous and dangerous explorations; quite enough has been done as far as the geographical problem is concerned, and it never can be available for commercial enterprise. We have already paid sufficiently "dear for our whistle;" and as that eminent astronomer, the late Baron de Zack, once said to me, while discussing the subject at Genoa, "depend upon it, it will eventually be found that the circuitous way is the nearest." J. MURRAY.

Portland-place, Hull, Jan. 29.

THE BAROMETER.

SIR,—I believe that my answer to Mr. Birkmyre was, in some parts, applicable to Dr. Murray's letter, but there is one point that your learned correspondent, Dr. Murray, still maintains, which I am anxious to clear up. He speaks of the aneroid barometer as an instrument "which I must still assume is founded on correct principles." Now, if forming an exhausted, or partly exhausted, chamber of metal, and that metal so thin in substance as to be easily affected (as the inventor says) by the slightest difference in the pressure of the atmosphere, is a correct principle, then I must assume that all which has been written by scientific men, respecting metals being porous, and all the experiments tending to illustrate the truth of their assertions, are entirely without foundation; but if, on the contrary, this law be correct, and that metals are really porous, I say again that the principle of the aneroid is most unsound, the instrument entirely depending upon this thin exhausted metal chamber for its indications. I, for my part, have never been able to form a vacuum (much less to retain it) in metal, let the substance be ever so thick; but, perhaps, your learned correspondent had better try the experiment. Let him form a Torricellian vacuum with an iron tube, or with any other metal, and let him see how long he will retain it; and if he is not convinced that metals are too porous to be used, as in the case of the aneroid, he will soon become so. In forming his Torricellian vacuum, let him take all possible precautions by using rings of platinum, and other matters, which need not be told to Dr. Murray, he being, no doubt, well acquainted with the subject. If safety in travelling be its chief recommendation, then I can easily persuade Dr. Murray not to rely too much on that, for I can show him, by reference to my books, how many of these portable instruments I have had to repair from one house alone during the last three months, they having been broken on the journey from Paris to London, packed with the skill that French and German packers alone know how to exercise, and still arrive broken; and, therefore, I contend that the Englefield is the safest after all, for, knowing how delicately it is to be handled, precautions are taken accordingly; while, with the aneroid, resting assured by what the agent tells you that there is no danger, it is not so carefully carried, and the consequence is, that when it is opened for reference it may be found useless, for the fall that would break the Englefield will also injure the aneroid, it being constructed as delicately as a watch, but with this difference, that certain precision is required in putting together and finishing a watch, whilst the interior of the aneroid is the most rough specimen of workmanship that I ever beheld, and any person possessing one can easily see by opening it, which is to be done with facility, without any injury to the instrument.

With reference to Mr. Birkmyre's letter, I can only refer that gentleman to the answer that Dr. Murray gave me, and there let him see if I am right or not, in saying that the doctor said nothing against the mercurial barometer that I could find fault with; let him read Dr. Murray's two letters, and he will perceive I blamed Dr. Murray for bestowing what I call undue praise on the aneroid—that was all; and in my answer to him, I gave the result of my experiments in proof of my assertions.

The remarks that Mr. Birkmyre complains of were solely elicited by his saying that the aneroid was but one-tenth the size and weight of the mercurial barometer. This I presumed (and still do) he spoke as to portability—consequently, for travelling, the travelling or mountain barometer, now generally constructed, seldom weighs more than 2 lbs. The Gay Lussac mountain barometer, in a brass frame with a leather sling case—a most complete portable instrument, on the syphon principle—weighs 2½ lbs.; the aneroid weighs 1¾ lb. in its case. So much, then, for the one-tenth of weight. The size of a mountain barometer is 33 in. long, and about as thick as a walking-stick, forming a very convenient parcel. The aneroid measures 6½ in. by 5¾, and 2½ in. thick in the centre, which is too large for the pocket, and quite large enough for the hand, as Mr. Birkmyre would find, if he had to carry it some six or eight hours in ascending a mountain, in an atmosphere of 20°, or, perhaps, less. So much, then, for size. These are the circumstances that induced me to make the observations that Mr. Birkmyre complains of; I leave it to him to say if I was wrong.

What shall I say now to the very *Bell's Life* sort of a letter of M. Vidi?—what shall I say to a man who begins by giving me the lie, and by saying that I speak from interested motives, and urges that, and that only, as evidence that his instrument is perfection. I take it, that this is not the way scientific men generally discuss a point, and endeavour to elucidate facts. When I spoke of the aneroid, I gave proofs of my assertions—proofs that were witnessed by a second party, and that party a scientific man, and one who is not easily deceived by appearances. Why did not M. Vidi do the same? But, no; he tells me—at least he is instructed to tell me, by his London agents (who are not the least interested)—that he will lay me a wager of 400*l.* that I cannot produce a mercurial barometer as correct as his own—an assertion, to use your learned correspondent, Dr. Murray's, words, in speaking of the aneroid as a perfect instrument, "common sense must discern that such a preposterous opinion could not be entertained." And M. Vidi farther adds that, if I accept his terms, he will be ready, in 25 days, to come to London, and produce his aneroid. Now, the absurdity of the idea becomes very apparent. Here is a man who tells me that his instrument is everything it should be; and, in no very choice language, contradicts my statements. But still he requires 25 days to perfect one, in order to come over and prove the fact. Why, M. Vidi, with his *atelier*, and having some 200 or 300 aneroids always on hand, ought to have said he would come immediately, and not bring an instrument made on purpose for the occasion, but take any one of the aneroids now in London, and with that try what he proposes.

I believe the experiments I published in the *Mining Journal* were not the results of the observations made with the aneroid that M. Vidi is to take 25 days in perfecting. No—the instruments I used were some very recently bought at his place, and by them I will maintain what I stated, for all that M. Vidi or his agents say to the contrary; but they know as well as I do, that the aneroid is very materially affected by temperature. But their object in making this show is puffing, knowing full well that the novelty of the wager would create great interest in the scientific world, both here and abroad, where the aneroid finds but a very slow sale, and by their asserting in the different journals that the aneroid was the subject of a wager to the amount of *dix mille francs*, they would derive great benefit. And I say that were I to accede to his terms, I should only lend myself to a disgraceful puffing-up of the instrument, that would bring it into greater notoriety than it deserves, and a notoriety that it will never acquire by any other means than puffing.

In conclusion, I beg to say that, if M. Vidi can, in his 25 days' labour, perfect the instrument, it is a great shame he does not do it; and, if he succeeds, I shall be the first to hail it with pleasure; but if he sells it in its present imperfect state, I feel confident that very few scientific men will differ with me in my opinions.—H. NEGRETTI: *Hatton Garden, Jan.* 31.

P.S. Since writing the above, I have been favoured with a view of M. Vidi's original French communication; and I must, in justice to that gentleman, state that it did not contain the choice epithets that were published in his name, but which emanated entirely from his *friend*, the translator. And I am very glad to find that M. Vidi did not make use of the language that I consider none but a *mauvais sujet* ought to make use of, especially in scientific discussions.

BISCUIT-MAKING MACHINERY.

SIR,—My attention has been directed to a paragraph in your valuable Journal of the 8th of Dec. last, relating to my biscuit machinery, in which you say that you are informed "the principle is anything but new." That statement being erroneous, and calculated to mislead the public, and inflict injury on myself, I think it my duty to set you and your informant right, by explaining in what the novelty of my invention, which I have patented, consists, and as it begins where all other machinery previously constructed leaves off, you will at once see that there really is something "new" in the principle. I must first premise that my machines for mixing the flour and water, kneading or breaking the dough, and cutting the biscuits, although much improved and enlarged, are not on a "new" principle, but the same principle as several others which have been at work some time in this town, somewhat similar to the invention which your correspondent gave an account of at the Royal Clarence Victualling-yard, Weevel. My invention commences at the cutting-machine, and consists—1. Of a method of conveying the biscuits direct from that machine into the ovens.—2. An entirely new construction and arrangement of the ovens, placing them one above the other, to economise heat and space.—3. The endless revolving bottoms of the ovens and machinery for working the same; and, lastly, the method of applying the hot air to heat the ovens, by means of which the ovens are both filled and emptied without any manual labour whatever, except opening and shutting the doors and the valves, to admit the hot air. Each of my ovens contains about 1¼ cwt. of baked biscuit, and we cut the biscuit, fill each oven, and have the doors closed in two minutes, and it takes a minute and a half to empty each; the biscuits are turned out of the ovens into a box, which is at once hoisted up by the machinery into the drying room.

Were my invention adopted at Weevel, they would save the labour of eight men at the ovens, as one man would be able to attend to the whole, having only to open the doors when the biscuits are baked, and set the machinery in motion to empty them, instead of employing, as they do at present, one man to attend to each of the nine ovens; and I have no doubt they would save at least the labour of one man in passing the biscuits from the cutting-machine to the ovens; this would be a total saving of nearly 50 per cent. in wages at that establishment.

To show the great economy of space by my invention, I may mention that my boiler, steam-engine (8-horse power), biscuit machinery, and four ovens, are contained in an apartment 52 ft. long, 15½ ft. wide, and 8 ft. high; the apparatus for heating the air for the ovens is placed under a yard at the back, the furnace opening into the apartment. I may add that I have not yet had the pleasure of seeing the Weevel Royal Clarence Biscuit Manufactory. I trust that, in justice to the public and myself, you will insert this in an early Number of your Journal.

Mersey-street, Liverpool, Jan. 29. THOMAS HARRISON.

WEST CORNWALL RAILWAY.

SIR,—Your Journal is valuable for, amongst other things, its instrumentality in bringing to light what would otherwise remain in darkness, but which ought to be seen. I have perceived in your articles a readiness to publish abuses in the mining and railway world. There is one very gross abuse connected with this railway, which I should be glad to see commented on as it deserves—viz.: the excessive *engineering charges*, amounting to about 11,000*l.*, for the Parliamentary plans and sections, and for marking out the line. I could not have believed that any engineer would have charged such an enormous sum for those services, if I had not seen it in the advertised accounts of the company, which no one will question. It is true that Mr. Brunel, the same engineer, charged about 35,000*l.* for constructing the South Devon line, which seems very excessive, but *that line is laid down*. Here is a charge of 11,000*l.*, where no execution of work is commenced. How the directors could have made up their minds to pass such an account is a subject of much wonder. There is a sad want of economy in their management, if this is to be taken as a specimen of it. The length of the line is about 26 miles; 11,000*l.* divided by that number gives 423*l.* per mile. Now, 50*l.* per mile for everything hitherto done by the engineer is a *liberal* payment; that would be 1300*l.* for the work instead of 11,000*l.*, making a difference of nearly 10,000*l.* fraud, or overcharge, on the company. If Mr. Brunel is a shareholder, that is no reason for paying him so very much more than what would be a fair remuneration for his services. I do not know a single director of the company, but I would take the liberty to suggest the necessity of economy. The sad want of that quality in the directors of the South Devon line has almost made the concern bankrupt. The West Cornwall line, under proper management, will pay a fair per centage on the outlay.—JOHN BULL: *Truro, Jan.* 29.

[For continuation of "Original Correspondence," see page 51.]

WASHING LIQUOR.—A paragraph thus headed is now going the round of the papers, stating that the puffed-up washing compositions, so abundantly advertised, contain soda, lime, and soap; we are requested by Messrs. Twelvetrees, Brothers, to say, that washing liquor so prepared, extracts the colours from all fabrics subjected to its operation, which their preparation does not, nor does it cause the slightest injury; and, further, that such a preparation would be illegal, and subject the manufacturer and retailer to a penalty of 50*l.* for every offence; while they have the report of the Excise analytical chemist, affirming it to contain no such material, and that it is perfectly legal in every sense of the word.

MANUFACTURE OF ICE.—Sir J. F. W. Herschel, in reference to the system of making ice by the expansion of highly compressed air (previously reduced to the ordinary temperature), in a letter to the *Athenæum*, says:—"An old steam-boiler, buried some 20 or 30 feet underground in well rammed earth, and furnished with a condensing pump (worked aboveground), and one eduction pipe opening by a stop-cock through a rose into water, would, in an hour or two, supply ice, *ad libitum*, for the use of a family in the country, the condensation being performed over night."

AN INFALLIBLE REMEDY ARE HOLLOWAY'S PILLS FOR THE CURE OF COUGHS, COLDS, AND ASTHMAS.—There are daily so many undeniable proofs of the efficacy of Holloway's Pills in the cure of diseases of the throat, such as bronchitis, recent colds, wheezings or shortness of breath, that all persons, whether young or old, suffering from such complaints, should have immediate recourse to these invaluable pills, as a fair trial will show their extraordinary powers. Many persons who were scarcely able to draw their breath, and apparently almost at their last hour, have been completely cured by this remedy, to the astonishment of those who were aware of their sufferings.—Sold by all druggists, and at Prof. Holloway's establishment, 244, Strand.

THE MINERAL DISTRICT OF GUYANDOTTE, WESTERN VIRGINIA.

The section of country from Guyandotte to the Cumberland mountain is entirely a mineral one, containing Cannel and bituminous coal, iron ore limestone lying alternately with coal and ore, freestone, and millstone grit The faults contain lead, and, although I have not been able, from want of time, to lay open any veins, yet the appearance tells me there is abundance. I have specimens of it I picked up, and I have no doubt of its existence. The coal and ores are seen in the beds of rivers and streams of water, ravines, &c.; there is no difficulty of finding either. The country is a succession of ridges, resembling the waves of the ocean; the valleys are watered by the finest of springs, and so situated that roads can be made at a very moderate cost. The minerals repose under the ridges, and you find them cropping out on the face of the ridge. The limestone ore is from 10 in. to 4 and 5 ft. thick, and requires but little time to reduce it. The hematite ore, in many cases almost pure iron, is from 10 in. to 3 and 4 ft.; the kidney ore is of various thicknesses; all the ores can be reached by adit, and in the low ground by stripping, or patching, as it is termed in Wales. The coal varies from 20 inches to 9 feet in thickness, the limestone from 3 feet to 8 feet in thickness, with the limestone ore invariably lying on it. The coverings for the coal are generally sandstone rock, or strong bodies of shale, perfectly firm and compact. Fire-clay and potters' clay are in the greatest abundance. The lands are covered with the finest of timber, which can be converted into charcoal, that being the fuel used in Ohio and Kentucky for smelting with. The furnaces are of the most rude description, often built against a great ledge of the sandstone rock, and cost from $6000 to $25,000, or 1200*l.* to 5000*l.* Such is the profit on pig-iron that all the outlay is returned in 12 months, and very often a profit besides. The land is worth from $50 to 50 cents.; but good furnace sites can be bought at present from $5 to $10 per acre, two miles from the Ohio River, with all the timber and everything contained. The land when cleared produces heavy crops; but it is better adapted for grazing than cultivation; consequently, well suited for those accustomed to hilly districts. Lands are sold on time, from one to five years; and, independent of mineral wealth, many Welshmen, Scotchmen, and Germans do well by grazing, and consuming the produce they raise. The climate is very healthy, food cheap, wages good, and employment plentiful.

Improved Malleable Iron Furnace.—This is intended to convert the metal from the blast-furnace immediately into malleable iron, the heat being kept up while the iron is decarbonising. The furnace, from the top down to the boshes, is like those now in common use, the boshes are single or double. When the double boshes are used, the centre part is elevated, so as to form a division between the squares, which are two in number, and are situate on each side; under the squares are refining hearths. The air is to be heated in the tunnel in the ordinary way, and conducted through blast-pipes; from these are two tuyeres, the upper one as in the ordinary furnace, the other one leading to the refining hearth, each being furnished with a stop-valve to shut off the blast. From the refining arches a flue in the stack opens into the furnace head cap, and carries off the gas. The blast-furnace is worked in the ordinary way; when the refinery below is charged, the blast is stopped on that side, and by passing through a square tube, in which a stream of water is made to pass, the weight is supported; while the bloom is being refined, the tuyere on the opposite side is in full action, the other refinery is charging, and the furnace works uninterruptedly. When only one arch is used, a portable hearth is placed within it, divided into two parts, and placed stationary on rollers, so as to move, that it can be taken under the square; a charge obtained in one compartment can be brought under the blast and refined, while the other side is being charged. The invention was introduced by Mr. Lorenzo Siberts, of Woodstock, Shenandoah county, Virginia.

Clay's Patent Rolled Taper Iron.—The ingenious machinery invented and patented last year by Mr. Clay for the purpose of rolling iron of any section into taper bars, has now been brought extensively into use, and promises to confer an especial advantage on ship-builders, who can now purchase iron rolled ready to bend into ships' knees at a cost considerably under that of forged iron, which has hitherto been used for the purpose. It is also applicable to anchor shanks and stocks, windlass necks, levers, mill shafting, railway switches, &c. The machinery is very simple, consisting of a pair of hydraulic cylinders, fitted with solid pistons and rods, extending through the usual screw that holds down the upper roller. The cylinders are provided with two valves, one for the entrance and the other for the exit of the water, which are both self-acting. When the cylinders are filled with water, and the pressure of rolling a bar of iron is applied, the upper roller forces the water out of the cylinder by the exit valve, which allows the roller to rise, and the bar being rolled, to become gradually thicker. It is obvious that, by regulating the aperture of the valve for the exit of the water, the taper of the bar will be in a like manner regulated at the discretion of the workmen. Mr. Clay tells us in a note recently received from him—"We are at present making the taper iron at an ordinary large mill, just in the usual manner, at which has already been made taper bars at the rate of rather more than 2 tons an hour, or 25 per shift." Licenses have been granted to the Mersey Steel and Iron Company, on the west coast of Great Britain, and Messrs. Losh, Wilson, and Bell, of Newcastle-upon-Tyne, for the east coast.—*Artizan.*

The Collieries in the Potteries.—The coal pits about the Potteries are managed very much after the fashion of those in the Wolverhampton and Bilston district of the same county. A few pits are worked by gins and horse-power. The butty system flourishes as in South Staffordshire, but I think, upon the whole, that the aboveground apparatus is more efficient and less rude. A great many of the coal mines hereabout are rented by the Earl Granville from the Duchy of Cornwall, to whom it seems that the royalty belongs. The principal seam worked, as I was told at a shaft mouth, is one 6 or 7 feet high. The men work from six in the morning until different hours in the afternoon. There is none or very little "tommying" in this part of the county, but the wages of the colliers are seldom paid, as working men's wages ought to be—weekly.—Correspondent of *Morning Chronicle.*

New Mode of Constructing Ships.—A gentleman of this town has introduced a plan for building ships with iron ribs and all the interior parts strengthened with iron, but with the planking and exterior of wood, as in ordinary vessels of the old-fashioned construction. The planks are to be bolted to the iron, and it is believed by many parties conversant with the construction of ships, who have examined the various parts of the contrivance, that it will secure important advantages, amongst others those of cheapness and superior strength. A model of a vessel on this construction has been exhibited in the Exchange and Underwriters' rooms, and has attracted much attention. We are informed that a ship to be built on this plan has been recently laid down in one of our ship-yards. She is to be a first-class vessel, and will not cost more than 10*l.* per ton.—*Liverpool Times.*

The Electric Telegraph Company.—It will be recollected that in November last the Electric Telegraph Company, through the Attorney-General, applied to the Court of Queen's Bench, for liberty to file a criminal information against Messrs. Willmer and Smith, of Liverpool, for an alleged libel, published in the *Morning Herald* on the 11th of October last. The application for a conditional order was then granted, and the hearing of the case was, we understand, fixed for Wednesday. After the disposal of a few cases in that court, however, an application was made by the Attorney-General for an enlargement of the rule to next term, in order to enable him to examine the mass of evidence produced by the defendants. The application was not opposed by the defendants' counsel, Sir F. Thesiger

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Transmission of the Queen's Speech by Telegraph.—On Thursday, the speech from the throne was telegraphed from the station, in Lothbury, to all the principal towns and newspapers in the kingdom. There was a great demand for it in the agricultural districts, owing to its expected political allusion to the vexed question of protection. The multiple time taken in streaming off its contents of 954 words occupied about half an hour, being at the rate of 31 words in a minute. Between Liverpool and Manchester it was transmitted by the printing process, being at the rate of 15 words per minute. Altogether, the speech was distributed over 2000 miles of wire; the extreme speed attained by the ordinary process being at the rate of 45 words per minute, and by the newly introduced printing process, 37 words per minute.

White Zinc Paint.—The Society for the Encouragement of National Industry has granted a medal of gold, worth 3000 fr., to M. Leclaire, for his substitution of white of zinc for white of lead. It appears that from 1838 to 1847, no less than 3142 persons entered the Paris Hospital, attacked by disease, originating in the use of lead. Of these, 1898 persons worked at white of lead, or at minium; there were also 712 painters, 63 grinders of colours, and 10 preparers of visiting cards with a porcelain surface. Since 1846, no person has been attacked in M. Leclaire's establishment.—*Builder.*

Pentyrch.—A correspondent informs us that at Pentyrch Works, Dickson and Budd's process of smelting iron has been introduced. Not the slightest accident attended the change of process—a circumstance which may be attributed to the caution exercised by Mr. Broad and others. It is thought that a saving in the article of fuel alone, to the extent of 100 tons a week, will be the result of this introduction; and also that the iron will be much superior in quantity (from a given amount of ore) and quality.—*Merthyr Guardian.*

TOUGHENED CAST-IRON—STIRLING'S PATENT.

No. 1—For SMALL and MEDIUM CASTINGS.
No. 2—For HEAVY CASTINGS.
No. 3 (*Extra*)—For ROLLS, HEAVY SHAFTS, and VERY HEAVY CASTINGS.

The above is by far the strongest Cast-Iron made, and is now being extensively used where strong castings are required.

Further particulars may be obtained on application to

Messrs. GARDEN & MACANDREW,
27, Queen-street, Cheapside, from whom also the IRON can be PROCURED.

JOSEPH DEELEY, of the LONDON and NEWPORT IRON-WORKS, NEWPORT, MONMOUTHSHIRE, respectfully recommends to the notice of the public his PATENT FOUNDRY FURNACE, which has been effectually tested, and is now in constant use at the above works, where it may be seen by all persons interested. This furnace operates without the aid of any motive-power to impel the air. An immense saving is the consequence, both in erecting and working. One-third of the coke usually consumed is more than sufficient; a loss of only 22 lbs. of iron to the ton is sustained in smelting. It is also available for large or small work of every description, and may be tapped out as required.

The IRON MELTED in this furnace also undergoes an extraordinary improvement in quality.

SCOTCH PIG and SCRAP are returned equal to cold-blast in point of strength, and capable of being chipped or filed with the greatest facility.

FOUNDRIES USING this FURNACE may exist in the most densely populated cities, without causing the least nuisance—all smoke, dust, and noise being avoided.

The Continental, Colonial, Scotch, and Irish PATENT RIGHTS are for disposal; the Patentee would also treat for the purchase of Patent Rights, or Grant Licenses to manufacture for certain counties or districts in England or Wales.

APPLY TO THE PATENTEE AS ABOVE.

STRUVE'S PATENT MINE VENTILATOR.

Cost—£130.

TO COLLIERY PROPRIETORS.

Quantity of air passed through a Mine almost unlimited, to the extent of 200,000 cubic feet per minute, if necessary—depending on size of apparatus.

COST of an APPARATUS to produce a ventilation of 30,000 cubic feet per minute, ONE HUNDRED and FIFTY POUNDS, exclusive of patent right. This amount of ventilation would be sufficient for a mine working 150 tons per day, provided it was not very fiery; in which case it would be desirable to provide for 30,000 cubic feet of air per minute. The capabilities of the Ventilator may be doubled at any future time, at a comparatively small cost.

The Ventilator has been at work for upwards of nine months at the Eaglesbush Colliery, near Neath, working under a rarefaction of 9½ to 3 inches of water, which demonstrates the impracticability of furnace ventilation, when the shafts are shallow and the airways small.—It is practical to rarify a mine by this ventilator to the extent of 2 feet of water, or 2 inches of mercury.

LICENSES will be GRANTED on application to

Mr. WILLIAM PRICE STRUVE, Swansea,
Civil Engineer and Mineral Surveyor.

STEVENS and SON, GAS ENGINEERS, IRON and BRASS FOUNDERS, and CONTRACTORS for the ERECTION of GAS-WORKS, inclusive of APPARATUS, of every description, for the MANUFACTURE OF GAS, and the FITTINGS of from 20 to 20,000 LIGHTS, whether for Public or Private use.

ESTABLISHED IN 1815.

MANUFACTURERS of STATION METERS and GOVERNORS; and CONSUMERS' GAS-METERS, of the most approved construction.

CAST-IRON MAINS SUPPLIED and LAID for GAS or WATER; Street Lamp-posts, Brackets, and Bronze, Copper, Iron, or Tin Lanthorns.

TANKS and LIQUOR BACKS, of any dimensions, in Cast-iron or Galvanised Wrought-iron, constructed and erected.

The PATENT SEMAPHORE RAILWAY SIGNALS; and RAILWAY LAMPS, for Stations, Engines, Carriages, Signalmen, &c.

REGISTERING TURN-STILES, for Bridges, Piers, Baths, Public Gardens, &c.

ARCHITECTURAL DESIGNS CARVED in WOOD, or MODELLED in WAX or COMPOSITION, by Artists on the premises, and CAST in BRONZE, BRASS, IRON, &c.

And DRAWINGS, PLANS, and SPECIFICATIONS submitted.

Address—STEVENS & SON, DARLINGTON WORKS,
19, *SOUTHWARK BRIDGE-ROAD, LONDON.*

SEWERAGE OF LONDON.—The ATTENTION of the COMMISSIONERS appointed to determine upon the MOST EFFICIENT MATERIAL for the CONSTRUCTION of the SEWERS OF LONDON, is particularly directed to the ASPHALTE OF SEYSSEL, which more than any other material is applicable to the CONSTRUCTING and INTERNAL COATING of BRICK CULVERTS and OTHER CHANNELS for DRAINAGE.

The experiments made by the Royal Artillery on the embrasures of Plymouth Citadel, constructed of Seyssel Asphalte Brickwork, under the orders of the Hon. Board of Ordnance, have fully proved the superiority, adhesiveness, and strength of Seyssel Asphalte over all other cementitious compositions. A printed account of these experiments can be had on application to

I. FARRELL, Secretary,
Seyssel Asphalte Company—"Claridge's Patent"—Established 1838.

Note.—The application of the Asphalte of Seyssel is specially recommended by the Commissioners on the Fine Arts for covering the ground line of brickwork in marshy situations, and it has been suggested that it would be peculiarly applicable for covering the *areas* of closed *grave yards*, and for the construction of *catacombs.*

PATENT IMPROVEMENTS IN CHRONOMETERS, WATCHES AND CLOCKS.

E. J. DENT, 82, Strand; 33, Cockspur-street; 34, Royal Exchange (clock tower area), Watch and Clock Maker, BY APPOINTMENT, to the Queen and his Royal Highness Prince Albert, begs to acquaint the public, that the manufacture of his chronometers, watches, and clocks, is secured by three separate patents, respectively granted in 1836, 1840, 1842. Silver lever watches, jewelled in four holes, 6 gs. each; in gold cases, from £3 to £10 extra. Gold horizontal watches, with gold dials, from 8 gs. to 12 gs. each.

DENT'S PATENT DIPLIEDOSCOPE,
or Meridian Instrument, is now ready for delivery.—Pamphlets containing a description and directions for its use 1s. each, but to customers gratis.

Greatest Weights on Railways.—Mr. Hawkshaw states that locomotive engines are the greatest weights which can come on railways, and reckons 1¾ tons per foot linear as the greatest weight for a single line of railway. Mr. Fox, Mr. Fairbairn, and Mr. Brunel mention 1½ ton. Mr. W. H. Barlow states that on the Midland there are engines on four wheels weighing 32 tons exclusive of the tender, but that that weight is too great for the permanent way, and the rails are crushed and flattened by it. Mr. Stephenson and Mr. Locke state, 1 ton per foot linear is the greatest weight which comes on a single line of rail.

Railway Calls.—The amount falling due in February, as far as announced, is 1,030,041*l.*, against 1,579,541*l.* in the same month last year, and 2,140,541*l.* in 1848. The proportion of the 1,030,041*l.* called by foreign companies is 250,000.

Right of a Shareholder to Inspect the Accounts of a Railway Company.—On Wednesday Mr. Keane obtained, from the Court of Queen's Bench, a rule absolute for a mandamus, calling on the directors of the Wexford, Waterford, and Wicklow Railway Company, to permit the register of shares to be inspected. The rule was made absolute, although the counsel who had been instructed to show cause was not present, on the ground that the documents might be inspected before a meeting which would take place in Feb.; and if the mandamus did not issue at once, it would be useless.

Direct Birmingham and Oxford Railway.—On Monday last, Master Brougham appointed Mr. Hutton official manager to proceed with the winding up of the affairs of this undertaking. The petitioner, Capt. Jones, represents, on affidavit, that the proposed capital was 2,000,000*l.*, in 25*l.* shares, deposit 2*l.* 12s. 6d. paid on 4000 shares, for which there were 300,000 applications; 200 were allotted to each of the provisional committee, 100 each to the solicitors, 1500 to the surveyors and engineers, 500 to the secretary, and 20,000 among the immediate friends of the provisional committee.

London and Manchester Direct Railway.—On Saturday, Master Senior proceeded with the settlement of the remainder of the list of shareholders [see Journal last week], and, in reply to inquiries, stated that, so far as he was at present able to form an opinion, it was not likely that the shareholders would be called upon for contributions. The subject of the legality of the amalgamation entered into by the directors without the consent of the proprietors is now under inquiry, and it is understood that proceedings are to be commenced upon the matter. The accounts showed that the total expenditure had been 98,661*l.*, comprising 43,384*l.* for solicitors, 34,972*l.* for engineers, 16,050*l.* for Manchester terminus and rent, and a balance of 18*l.*

COAL MARKET, LONDON.

PRICE OF COALS PER TON AT THE CLOSE OF THE MARKET.

MONDAY.—Buddle's West Hartley 16 3—Carr's Hartley 16 6—Chester Main 16 6—East Adairs Main 14 6—Hastings Hartley 16 6—Holywell 17 9—North Percy Hartley 15 9—New Tanfield 14 6—Ord's Redheugh 15 3—Ravensworth West Hartley 16—Tanfield Moor Butes 14 6—Townley 16 6—Walker Primrose 14 6—West Hartley 16 3—Wylam 17 6—Windsor's Pontop 14 6—Wall's-End Brown's Gas 14 6—Hedley 17 3—Hotspur 16 6—Killingworth 17 6—Morrison 17 3—Northumberland 16 6—Percy 16 9—Eden Main 18—Lambton Primrose 18—Bell 18—Belmont 18—Braddyll 18 6—Hetton 19—Haswell 19—Jonassohn's 17—Lambton 18 6—Lumley 17 6—Russell's Hetton 18 6—Stewart's 19—Whitwell 17 6—Caradoc 18—Dennison 17 3—Heugh Hall 18—Hartlepool 19—Kelloe 18 6—North Hartlepool 16 6—South Kelloe 18—South Hartlepool 17 6 to 18—Thornley 18—West Hetton 17 9—Whitworth 15—Adelaide Tees 18 3—Tees 19—West Cornforth 17—West Tees 17—Cowpen Hartley 16 6—Derwentwater Hartley 16—Howard's West Hartley Netherton 16—Holywell Trader 16 6—Nixon's Merthyr and Cardiff 20 6.—Ships at market, 442; sold, 187.

WEDNESDAY.—Bate's West Hartley 15 9—Carr's Hartley 16 6—Hasting's Hartley 16—Holywell 17 9—North Percy Hartley 15 9—New Tanfield 14 6—Ord's Redheugh 15 3—Pelton Main 14—Ravensworth West Hartley 16—Tanfield Moor Butes 14 6—Townley 16 6—West Hartley 16 6—Windsor's Pontop 14 6—Wall's-End Brown's 16 3—Brown's Gas 14—Gosforth 17 6—Harton 17 3—Hilda 16 9—Sefton 15 3—Walker 17—Eden Main 18—Belmont 18—Hetton 19—Haswell 19 3—Jonassohns 17—Keepier 18—Lambton 18 6—Pemberton 17 3—Russell's Hetton 18 6—Stewart's 19—Dennison 17—Hartlepool 19—South Hartlepool 18—Thornley 18—West Belmont 18—Whitworth 15—Adelaide Tees 18 3—Cowndon Tees 17 3—Seymour Tees 17 6—South Durham 17 6—St. Helen's Tees 17—Tees 19—Cowpen Hartley 16 6—Derwentwater Hartley 16—Howard's West Hartley Netherton 16 6—Perkins's Garnsant 23—Whitworth Coke 20.—Ships, 317; sold, 65.

FRIDAY.—Carr's Hartley 16—Hasting's Hartley 16—Holywell 17 6—New Tanfield 15—Ord's Redheugh 15—Tanfield Moor Butes 14 6—Townley 16—Windsor Pontop 14 6—Wall's-End Acorn Close 17 6—Brown's 16—Brown's Gas 14—Hilda 16 9—Morrison 17 3—Walker 17—Haswell 19 3—Whitwell 17 6—Caradoc 18—Denison 17—South Hartlepool 18—Thornley 18 6—Whitworth 15—Seymour Tees 17 6—Tees 19—West Hartley Netherton 16—Perkins's Garnsant 23—Whitworth Coke 20.—Ships, 293; sold, 32.

BY HER MAJESTY'S ROYAL LETTERS PATENT.

DUNN'S IMPROVED MODE OF REMOVING RAILWAY CARRIAGES FROM ONE LINE TO ANOTHER.

The ADVANTAGES of the PATENT TRAVERSERS over those in ordinary use are, that there is no expensive gear attached, and they are not liable to get out of order; they are easily cleaned and oiled; the foundations are formed upon the simplest sleepers; the cross tram-rails are upon a level with the permanent rails, leaving no break or recess whatever, and the roads are as firm and steady as the general line. The whole of the gear is simple, strong, and inexpensive, compared with others, and leaving considerable more room in a station than turntables, and at a saving of from 200 to 300 per cent. over the same. One of these Trucks is now working 10 lines of rails at the Peterborough Station of the Eastern Counties Railway; another at the Salford Station, Manchester; and one is working 9 lines of rails on the Paris and Lyons Railway. It has also been introduced at many smaller stations throughout the country, for goods warehouses, stone quarries, collieries, contractors, &c.; and the engineer and directors of the Lancashire and Yorkshire Railway Company decided to work the chief stations at Liverpool and Bradford by two Traversers in each, working four lines of road per Traverser, in preference to all other plans submitted.

MANUFACTURED in ENGLAND solely by THOMAS DUNN, Windsor Bridge Iron-works, near Manchester; in SCOTLAND, by Messrs. SHANKS. and CO., Johnstone, near Glasgow; in FRANCE, by VARRALL, MIDDLETON, & ELWELL, *Ingénieurs Mécaniciens*, No. 1, Avenue Trudaine, Paris; and *BUDDICOM and CIE., Ateliers de Réparations, Boisville-les-Rouen.*

*** For prices and particulars regarding the various modes of working and turning, apply to Mr. THOMAS DUNN, WINDSOR BRIDGE IRON-WORKS, near Manchester, where various sizes are kept in stock. Also, Improved Screw Jacks, Crabs, and Blocks.—A good selection of Patterns for Cranes, Water Pillars, Engine Tables, Hydraulic Wheel Forcing and Chain Testing Machines, Hydraulic and Screw Presses, &c.

IMPROVED WIRE ROPE.—The UNDERSIGNED, in tendering their best thanks for the liberal support they have hitherto received, respectfully solicit attention to the vast IMPROVEMENTS which new machinery and attention has enabled them to effect in the MANUFACTURE of ANDREW SMITH'S PATENT WIRE ROPE, more particularly his FLAT ROPE, which they can now produce of a description far superior to any previously offered to the public.

WILKINS & WEATHERLY.
Patent Wire Rope Works, 39, High-street, Wapping, London.

ACCIDENTAL DEATH INSURANCE COMPANY.

(*Completely Registered under the Act 7 and 8 Victoria, cap.* 110.)

7, BANK BUILDINGS, LOTHBURY, LONDON.
(ADJOINING THE GOVERNMENT ANNUITY OFFICE, OLD JEWRY.)

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SECRETARY—William Young.

The directors beg to inform the public, that they are now ISSUING POLICIES of INSURANCE on the LIVES of all classes of persons against DEATH from ACCIDENT or VIOLENCE of every description.—The following are (amongst many others) some of the causes from which such death may ensue:—

By GUNSHOT and OTHER WOUNDS	By DROWNING
HORSES	SUFFOCATION
COACHES, CARRIAGES	EXPLOSIONS
WAGGONS, CARTS	BURNS
RAILWAYS	SCALDS
MACHINERY	LIGHTNING
FALLS OF EARTH and OTHER FALLS	MURDER MANSLAUGHTER

The risks undertaken by the company will be divided into the following classes:—

CLASS I.—ORDINARY RISKS.

Single payment, 21s. for £100.—Annual payment, 2s. 6d.

This class comprises the gentry, professional men, farmers, clerks, commercial travellers, and the generality of shopkeepers and tradesmen under 60 years of age.

CLASS II.—HAZARDOUS RISKS.

Annual premium, 5s. for £100.

This class comprises such occupations as builders, carpenters, sawyers, masons, house-painters, coopers, millers, printers, and such tradesmen and shopkeepers as are not included in Class I., as licensed victuallers and beer sellers.

CLASS III.—MORE HAZARDOUS RISKS.

Annual premium, 7s. 6d. for £100.

This class comprises labourers, porters, carriers, policemen, and all persons, as ostlers, coachmen, postillions, guards, &c., employed about horses.

CLASS IV.—MOST HAZARDOUS RISKS.

Annual premium from 10s. 6d. to £1 1s. for £100.

This class embraces all whose occupations are more hazardous to life than those embraced in the preceding classes. It embraces boatmen and sailors, miners, colliers, the drivers and stokers of steam-engines, and, generally, persons employed in the construction of large engineering works, as docks, tunnels, &c.

Prospectuses, forms of proposal for insurances, and of applications for shares, and further information, may be obtained at the offices of the company, or on application to any of the company's agents.

By order of the directors,
WILLIAM YOUNG, Secretary.

AGENTS WANTED IN DEVON, CORNWALL, AND NORTH AND SOUTH WALES.

SCOTTISH AMICABLE MUTUAL LIFE ASSURANCE SOCIETY.—Established 1826.

LONDON OFFICES—No. 43, LOMBARD-STREET.

PRESIDENT.
THE MOST NOBLE THE MARQUIS OF DALHOUSIE.

VICE-PRESIDENTS.
HIS GRACE THE DUKE OF BUCCLEUCH.
JOHN CAMPBELL COLQUHOUN, Esq., of Killermont.

A Policy of £1000, opened with this Society in 1840, was, in 1846, by the addition of £2 per annum on every £100, increased to £1120. And, by the above principle of this Society, an addition of 2 per cent. per annum, upon the above accumulated sum of £1120, gives, as the value of the original policy of £1000,

In 1849, if it then becomes a claim			£1187	4 0
1850	"	"	1209	12 0
1851	"	"	1232	0 0
1852	"	"	1254	8 0

TABLE—*Illustrating Accumulation of Additions on £1000 Policy on Society's Plan:*—

Amount with Additions.		Sum of Premiums paid according to Ages at entry.			
At end of Years.	At 2 per cent. per ann.	20.	27.	34.	41.
6	£1120 0 0	£145 5 0	£167 8 4	£196 5 10	£235 19 2
13	1276 16 0	290 10 0	334 16 8	392 11 8	471 18 8
27	1659 6 7	581 0 0	669 13 4	785 3 4	943 16 4
55	2802 10 10	1162 0 0	—	—	—

New entrants admitted to every advantage.
Immediate, deferred, and survivorship annuities granted.
Every facility afforded to assurers.
THE WHOLE PROFITS DIVIDED AMONG THE ASSURED.

Manager—WILLIAM SPENS.
Resident Secretary in London—J. E. C. KOCH.

SEA, FIRE, LIFE ASSURANCE OFFICE, CONNECTING THE MINING INTERESTS OF ENGLAND AND WALES.
(Established by Act of Parliament.)

31, *CORNHILL, LONDON.*

Capital £100,000, in shares of 20s. each, to be paid in full on allotment, bearing a guaranteed interest of 5 per cent. in perpetuity (irrespective of further dividends) upon the paid-up capital.

Application for shares to be addressed to the Directors, at the offices of the Society.

Marine, fire, and life assurances granted on the most liberal terms.

Immediate and deferred annuities granted on terms especially advantageous for investment of capital.

By order, AUG. COLLINGRIDGE, Managing Director.

SPECIMENS OF THE RATES OF PREMIUM FOR ASSURANCE OF £100.

Age.	With Profits.	Age.	Without Profits.
20	£1 19 3	20	£1 14 6
30	2 11 3	30	2 5 1
40	3 8 3	40	3 0 2

The whole of the Profits from the Life Department divided amongst the Policy holders. All Life Policies indisputable.—All Life Policies free of stamp duty.

ALFRED BURT, Actuary.

*** WANTED, AGENTS and MEDICAL REFEREES for the PRINCIPAL TOWNS in the KINGDOM.

COUNTY SURVEYORS ALSO REQUIRED.

SEA, FIRE, LIFE ASSURANCE SOCIETY.—Notice is hereby given, that the HALF-YEARLY DIVIDEND on the capital stock of this society, at the rate of 5 per cent. per annum, due on the 31st ult., will become PAYABLE on or after the 30th inst.

By order of the court of directors,
31, Cornhill, London, Jan. 9, 1850, AUG. COLLINGRIDGE, Managing Director.

SEA, FIRE, LIFE ASSURANCE SOCIETY.—Notice is hereby given, that the REGISTERED SHARE CERTIFICATE of this society will be DELIVERED on application, on production of the share receipt.

By order of the court of directors,
31, Cornhill, London, Jan. 9, 1850. AUG. COLLINGRIDGE, Managing Director.

London: Printed by Richard Middleton, and published by Henry English (the proprietors), at their offices, No. 26, Fleet-street, where all communications are requested to be addressed. [*February* 2, 1850.